

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 3,1 A
 Edition : 08.09.87
 replaces : 07.84
 Calibrating oil : ISO 4113

Injection pump : VA 4/100H1200 CR 145

Type number : 0 460 304 237

Customer-specific information

Customer : STEYER

Engine : WD 408.43

TEST BENCH REQUIREMENTS

Inlet press., bar : 0,2

Calibrating nozzle-holder assembly : 1 688 901 020

Opening pressure bar : 172...175

Perforated-plate diameter mm : 0,6

Test inj. tubing : 1 680 750 017

Outside diameter : 6

x Wall thickness : 2

x Length mm : 840

Start of delivery

Prestroke mm : 0,3
 (from BDC) : +0,02 (0,04)Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000

Setting value mm: 3,4...4,2

Supply-pump pressure:

Speed 1/min: 1000

Setting value bar: 4,7...5,2

Full-load del. with charge press.:

Speed 1/min: 1180

Del.quantity cm³/
 1000H.: 65,0...66,0
 Dispersion cm³/ : 2,0
 1000H. : -

Low-idle speed regulation:

Speed 1/min: 250
 Del.quantity cm³/
 1000H.: 12,0...18,0
 Dispersion cm³/ : 3,0
 1000H. : -

Full-load speed regulation:

Speed 1/min: 1270
 Del.quantity cm³/
 1000H.: 36,0...44,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 80,0

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 700
TD travel	mm: 0,5...1,5
	mm: (0,2...1,8)
2nd speed	1/min: 1000
TD travel	mm: -
	mm: (3,1...4,5)
3rd speed	1/min: 1140
TD travel	mm: 5,1...5,8
	mm: (4,8...6,1)

Supply-pump pressure characteristic:

1st speed	1/min: 200
Supply-pump pressure	bar: 1,2...1,7
2nd speed	1/min: 1200
Supply-pump pressure	bar: 5,5...6,0

Overflow quantity at overflow valve:

1st speed	1/min: 500
Overflow	: 55...97
quantity	cm ³ /10s: (40...112)
2nd speed	1/min: 1200
Overflow	: 55...97
quantity	cm ³ /10s: (40...112)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1320

Del.quantity cm³/: -
1000H.: -
2nd speed 1/min: 1270
Del.quantity cm³/: 36,0...44,0
1000H.: (35,0...45,0)
3rd speed 1/min: 1180
Del.quantity cm³/: 65,0...66,0
1000H.: (64,5...66,5)
4th speed 1/min: 900
Del.quantity cm³/: 69,0...71,0
1000H.: (68,0...72,0)
5th speed 1/min: 500
Del.quantity cm³/: 62,0...65,0
1000H.: (61,0...66,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1200
Del.quantity cm³/: -
1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 330
Del.quantity cm³/: -
1000H.: -
2nd speed 1/min: 250
Del.quantity cm³/: 12,0..18,0
1000H.: (11,0..19,0)

Mounting and assembly dimensions:

Angles:
Alpha ° : 25 +-4
Beta ° : 40 +-8
Gamma ° : 30 -8
Delta ° : 60 + 8

Initial setting dimensions:

Dimension IV mm : 3,40
Governor-spring washer thickness
Dimension V mm : 24,65

Remarks:

:

Acceleration from start to full load
with n = 170...250 min.. -1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 2,0 I4
 Edition : 03.11.87
 replaces : 09.85
 Calibrating oil : ISO-4113

Injection pump : VE 5/10F2250 L150
 Type number : 0 460 405 033

Customer-specific information
 Customer : VW

Engine : 153 T

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder assembly : 1 688 901 000

Opening pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : 0,2
 (from BDC) : +/-0,02 (0,04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
 Charge press. hPa: 750
 Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1500
 Charge press. hPa: 750
 Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 750
 Del.quantity cm³/
 1000H.: 43,5...44,5
 Dispersion cm³: 2,5
 1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 21,5...22,5

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2525
 Charge press. hPa: 750
 Del.quantity cm³/
 1000H: 10,0...14,0

Start:

Speed 1/min: 100
 Charge press. hPa: -
 Del.quantity : -
 mind cm³/1000H.: 50,0

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 850
 Charge press. hPa: 750
 TD travel mm: 1,1...1,9
 mm: (0,8...2,2)

2nd speed 1/min: 1500
 Charge press. hPa: 750
 TD travel mm: 3,1...3,5
 mm: (2,6...4,0)

3rd speed 1/min: 2250
 Charge press. hPa: 750
 TD travel mm: 5,4...6,2
 mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 3,2...3,8
 2nd speed 1/min: 1500

Charge press. hPa: 750
 Supply-pump
 pressure bar: 5,5...6,1
 3rd speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2250
 Charge press. hPa: 750
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 850
 Charge-air pressure-setting
 point hPa: 400
 LDA stroke mm: 3,6
 Del.quantity cm³/: 34,5...35,5
 1000H.: (32,0...38,0)
 2nd speed 1/min: 2700
 Charge press. hPa: 750
 Del.quantity cm³/: 0,0...3,0
 1000H.: -
 3rd speed 1/min: 2525
 Charge press. hPa: 750
 Del.quantity cm³/: 10,0...14,0
 1000H.: (8,0...16,0)
 4th speed 1/min: 2425
 Charge press. hPa: 750
 Del.quantity cm³/: 23,0...33,0
 1000H.: (22,0...34,0)
 5th speed 1/min: 2250
 Charge press. hPa: 750
 Del.quantity cm³/: 37,0...39,0
 1000H.: (35,8...40,2)
 6th speed 1/min: 1500
 Charge press. hPa: 750
 Del.quantity cm³/: 43,5....44,5
 1000H.: (41,8...46,2)
 7th speed 1/min: 850
 Charge press. hPa: 400
 Del.quantity cm³/: 34,5...35,5
 1000H.: (32,0...38,0)
 8th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³/: 21,5...22,5
 1000H.: (19,0...25,0)
 9th speed 1/min: 500
 Charge press. hPa: 750
 Del.quantity cm³/: 29,5...32,5
 1000H.: (28,0...34,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del.quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del.quantity cm³/: 6,0...10,0
 1000H.: (4,0...12,0)
 2nd speed 1/min: 450
 Del.quantity cm³/: 0,0...3,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
 Charge press. hPa: -
 Del.quantity cm³/: -
 ind. 1000H: 18,0

3rd speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³/: 5,0...25,0
 1000H: -

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : -
KF	mm : 5,7...6,0
MS	mm : 1,7...1,9
SVS max.	mm : 4,2

Remarks:

:
Correction at adjusting nut (46)

Make TAS adjustment only at full manifold-pressure compensator pressure.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2,0 IS
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113

Injection pump : VE 5/10F2250 L150-1
Type number : 0 460 405 034

Customer-specific information
Customer : VW

Engine : 153 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm³/
1000H.: 43,5...44,5
Dispersion cm³/ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 21,5...22,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm³/
1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del.quantity cm³/
1000H: 10,0...14,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 850
Charge press. hPa: 750
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,1...3,5
mm: (2,6...4,0)
3rd speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 5,4...6,2
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump
pressure bar: 3,2...3,8
2nd speed 1/min: 1500

Charge press. hPa: 750
 Supply-pump
pressure bar: 5,5...6,1
 3rd speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2250
 Charge press. hPa: 750
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 850
 Charge-air pressure-setting
point hPa: 400
 LDA stroke mm: 3,6
 Del.quantity cm³: 34,5...35,5
 1000H.: (32,0...38,0)
 2nd speed 1/min: 2700
 Charge press. hPa: 750
 Del.quantity cm³: 0,0...3,0
 1000H.: -
 3rd speed 1/min: 2525
 Charge press. hPa: 750
 Del.quantity cm³: 10,0...14,0
 1000H.: (8,0...16,0)
 4th speed 1/min: 2425
 Charge press. hPa: 750
 Del.quantity cm³: 23,0...33,0
 1000H.: (22,0...34,0)
 5th speed 1/min: 2250
 Charge press. hPa: 750
 Del.quantity cm³: 37,0...39,0
 1000H.: (35,8...40,2)
 6th speed 1/min: 1500
 Charge press. hPa: 750
 Del.quantity cm³: 43,5...44,5
 1000H.: (41,8...46,2)
 7th speed 1/min: 850
 Charge press. hPa: 400
 Del.quantity cm³: 34,5...35,5
 1000H.: (32,0...38,0)
 8th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³: 21,5...22,5
 1000H.: (19,0...25,0)
 9th speed 1/min: 500
 Charge press. hPa: 750
 Del.quantity cm³: 29,5...32,5
 1000H.: (28,0...34,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2250
 Del.quantity cm³: 0,3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del.quantity cm³: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del.quantity cm³: 6,0...10,0
 1000H.: (4,0...12,0)
 2nd speed 1/min: 450
 Del.quantity cm³: 0,0...3,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
 Charge press. hPa: -
 Del.quantity cm³: -
 ind. 1000H: 18,0

3rd speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³: 5,0...25,0
 1000H: -

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,7...6,0
MS	mm	:	1,7...1,9
SVS max.	mm	:	4,2

Remarks:

Correction at adjusting nut (46)

Make TAS adjustment only at full manifold-pressure compensator

pressure.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 2,4 M
Edition : 04.11.87
replaces : 19.12.86
Calibrating oil : ISO-4113

Injection pump : VE 6/10F2150 L152
Type number : 0 460 406 040

Customer-specific information
Customer : VW

Engine : 087T-LT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm³/:
 1000H.: 41,5...42,5
Dispersion cm³/ : 2,5
 1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm³/
 1000H.: 23,5...24,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm³/
 1000H.: 6,0...10,0
Dispersion cm³/ : 2,0
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2300
Charge press. hPa: 750
Del.quantity cm³/
 1000H: 22,0...23,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 0,5...1,3
 mm: (0,2...1,6)

2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 2,3...2,7
 mm: (1,8...3,2)

3rd speed 1/min: 2150
Charge press. hPa: 750
TD travel mm: 4,4...5,2
 mm: (4,1...5,5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750

Supply-pump pressure bar: 3,1...3,7
2nd speed 1/min: 1500
Charge press. hPa: 750
Supply-pump pressure bar: 5,5...6,1
3rd speed 1/min: 2150
Charge press. hPa: 750
Supply-pump pressure bar: 7,2...7,8

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2150
Charge press. hPa: 750
Overflow quantity cm³/10s: 55...138
 (26...98) (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 300
LDA stroke mm: 4,5
Del.quantity cm³/:
 1000H.: 32,5...33,5
 (30,0...36,0)
2nd speed 1/min: 2600
Charge press. hPa: 750
Del.quantity cm³/:
 1000H.: 0,0...3,0
 -
3rd speed 1/min: 2400
Charge press. hPa: 750
Del.quantity cm³/: 10,0...14,0
 (8,0...16,0)
4th speed 1/min: 2300
Charge press. hPa: 750
Del.quantity cm³/: 17,5...27,5
 (16,5...28,5)
5th speed 1/min: 2150
Charge press. hPa: 750
Del.quantity cm³/: 35,0...37,0
 (33,8...38,2)
6th speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm³/: 41,5...42,5
 (39,8...44,2)
7th speed 1/min: 750
Charge press. hPa: 300
Del.quantity cm³/: 32,5...33,5
 (30,0...35,0)
8th speed 1/min: 600
Charge press. hPa: -
Del.quantity cm³/: 23,5...24,5
 (21,0...27,0)
9th speed 1/min: 600
Charge press. hPa: 750

Del.quantity cm³/: 35,5...38,5
1000H: (34,0...40,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 450
Del.quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Charge press. hPa: -
Del.quantity cm³/: -
ind. 1000H: 25,0

2nd speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: -
max. 1000H: 27,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 6,3...6,6
MS mm : 1,0...1,2
SVS max. mm : 3,8
FH mm : 1,8...2,4

Remarks:

;
Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA 3,4 A
 Edition : 16.11.87
 replaces : 16.12.86
 Calibrating oil : ISO-4113

Injection pump : VE 6/10F1800 R209
 Type number : 0 460 406 048

Customer-specific information
 Customer : ONAN

Engine : L 634 T

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : 0,2
 (from BDC) : +/-0,02 (0,04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1400
 Charge press. hPa: 800
 Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 1400
 Charge press. hPa: 800
 Setting value bar: 4,8...5,4

Full-load del. with charge press.:

Speed 1/min: 1400
 Charge press. hPa: 800
 Del.quantity cm³/
 1000H.: 58,5...59,5
 Dispersion cm³/ : 3,0
 1000H. : (4,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
 Del.quantity cm³/
 1000H.: 44,0...45,0

Low-idle speed regulation:

Speed 1/min: 400
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 14,0...18,0
 Dispersion cm³/ : 3,0
 1000H. : (3,0)

Full-load speed regulation:

Speed 1/min: 1900
 Charge press. hPa: 800
 Del.quantity cm³/
 1000H.: 37,0...43,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1400

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 800
 Charge press. hPa: 800
 TD travel mm: 1,4...2,2
 mm: (1,1...2,5)

2nd speed 1/min: 1400
 Charge press. hPa: 800
 TD travel mm: 4,3...4,7
 mm: (3,8...5,2)

3rd speed 1/min: 1800
 Charge press. hPa: 800
 TD travel mm: 5,8...6,6
 mm: (5,5...6,9)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Charge press. hPa: 800
 Supply-pump pressure bar: 2,7...3,3
 2nd speed 1/min: 1400
 Charge press. hPa: 800
 Supply-pump pressure bar: 4,8...5,4
 3rd speed 1/min: 1800
 Charge press. hPa: 800
 Supply-pump pressure bar: 6,0...6,6

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Charge press. hPa: 800
 Overflow quantity cm³/10s: 41...83
 2nd speed 1/min: 1800
 Charge press. hPa: 800
 Overflow quantity cm³/10s: 55...138
 (26...98) (41...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting point hPa: 200
 LDA stroke mm: 6,5
 Del.quantity cm³: 47,0...48,0
 1000H.: (45,2...49,8)
 2nd speed 1/min: 2050
 Charge press. hPa: 800
 Del.quantity cm³: 0,0...3,0
 1000H.: -
 3rd speed 1/min: 2000
 Charge press. hPa: 800
 Del.quantity cm³: 5,5...14,5
 1000H.: -
 4th speed 1/min: 1950
 Charge press. hPa: 800
 Del.quantity cm³: 23,0...31,0
 1000H.: (22,0...32,0)
 5th speed 1/min: 1900
 Charge press. hPa: 800
 Del.quantity cm³: 37,0...43,0
 1000H.: (36,0...44,0)
 6th speed 1/min: 1800
 Charge press. hPa: 800
 Del.quantity cm³: 51,5...54,5
 1000H.: (51,2...55,8)
 7th speed 1/min: 1400
 Charge press. hPa: 800
 Del.quantity cm³: 58,5...59,5
 1000H.: (56,7...61,3)
 8th speed 1/min: 700
 Charge press. hPa: 800
 Del.quantity cm³: 58,0...61,0
 1000H.: -

9th speed 1/min: 700
 Charge press. hPa: -
 Del.quantity cm³: 44,0...45,0
 1000H.: (42,2...46,8)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1800
 Del.quantity cm³: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 350
 ELAB volt: -
 Del.quantity cm³: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
 Del.quantity cm³: 14,0..18,0
 1000H.: (12,0..20,0)
 2nd speed 1/min: 450
 Del.quantity cm³: 0,0...6,0
 1000H.: -
 3rd speed 1/min: 350
 Del.quantity cm³: 26,5..33,5
 1000H.: (26,0..34,0)

Automatic starting fuel delivery:

1st speed 1/min: 220
 Del.quantity cm³: -
 ind. 1000H: 42,0
 2nd speed 1/min: 300
 Del.quantity cm³: -
 max. 1000H : 42,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm :	-
KF	mm :	5,7...6,0
MS	mm :	1,3..1,55
SVS max.	mm :	1,4

Remarks:

:
Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA 3,4 B
Edition : 16.11.87
replaces : 16.12.86
Calibrating oil : ISO-4113

Injection pump : VE 6/10F1400 R209-1
Type number : 0 460 406 052

Customer-specific information
Customer : ONAN

Engine : L 634 T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +/-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 800
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 800
Setting value bar: 3,8...4,4

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 800
 Del. quantity cm³/
 Dispersion 1000H.: 61,0...62,0
 cm³: 3,0
 1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del. quantity cm³/
1000H.: 44.5...45.5

Low-idle speed regulation:

Speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/
 1000H.: 14,0...18,0
 Dispersion cm³/: 3,0
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 1480
Charge press. hPa: 800
Del. quantity cm³/
1000H: 42,0...46,0

Starting

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1100

Inspection-pump test specifications Test specifications in parentheses

1st speed	1/min:	800
Charge press.	hPa:	800
TD travel	mm:	1,4...2,2
	mm:	(1,1...2,5)
2nd speed	1/min:	1100
Charge press.	hPa:	800
TD travel	mm:	2,8...3,2
	mm:	(2,3...3,7)
3rd speed	1/min:	1400
Charge press.	hPa:	800
TD travel	mm:	4,2...4,8
	mm:	(3,8...5,2)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 800
Supply-pump
pressure bar: 2,3...2,9
2nd speed 1/min: 1100
Charge press. hPa: 800
Supply-pump
pressure bar: 3,8...4,4
3rd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump
pressure bar: 4,8...5,4

1st speed 1/min: 700

1st speed 1/min: 700
 Charge press. hPa: 800
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1400
 Charge press. hPa: 800
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed	1/min:	700
Charge-air pressure-setting point	hPa:	200
LDA stroke	mm:	6,5
Del. quantity	cm ³ /:	47,0...48,0
	1000H.:	(45,2...49,8)
2nd speed	1/min:	1600
Charge press.	hPa:	800
Del. quantity	cm ³ /:	0,0...6,0
	1000H.:	-
3rd speed	1/min:	1560
Charge press.	hPa:	800
Del. quantity	cm ³ /:	14,0...22,0
	1000H.:	-
4th speed	1/min:	1480
Charge press.	hPa:	800
Del. quantity	cm ³ /:	42,0...46,0
	1000H.:	(40,0...48,0)
5th speed	1/min:	1400
Charge press.	hPa:	800
Del. quantity	cm ³ /:	56,5...59,5
	1000H.:	(55,7...60,3)
6th speed	1/min:	1100
Charge press.	hPa:	800
Del. quantity	cm ³ /:	61,0...62,0
	1000H.:	(59,2...63,8)
7th speed	1/min:	700
Charge press.	hPa:	800
Del. quantity	cm ³ /:	58,0...60,0
	1000H.:	-
8th speed	1/min:	700
Charge press.	hPa:	-
Del. quantity	cm ³ /:	44,5...45,5
	1000H.:	(42,7...47,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm³/: 14,0..18,0
1000H.: 12,0...20,0
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 350
Del. quantity cm³/: 26,5..33,5
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 220
Del. quantity cm³/: -
ind. 1000H: 42,0

2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H: 42,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,7...6,0
MS mm : 1,3..1,55
SVS max. mm : 1,6

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3,1 F
Edition : 16.11.87
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE 4/11F1900 R217 B
Type number : 0 460 414 027

Customer-specific information
Customer : VOLVO-PENTA

Engine : TAMD 31

Power k: 95

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : 0,3
(from BDC) : +/-0,02(0,04)

Indicator setting:
Piston stroke mm: 1.66
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value bar: 6,1...6,7

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 93,5...94,5
Dispersion cm³/ : 5,0
1000H : (5,0)

Full-load del. w/out charge press.:

Speed 1/min : 650
Del. quantity cm³/
1000H.: 58,5...59,5

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/
1000H.: 23,0...27,0
Dispersion cm³/ : 3,5
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 2100
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 14,5...20,5

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 95,0

Inspection-pump test specifications Test specifications in parentheses

1st speed 1/min: 1300
Charge press. hPa: 1000
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
2nd speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 2,3...2,7
mm: (1,8...3,2)
3rd speed 1/min: 1900
Charge press. hPa: 1000
TD travel mm: 4,1...4,9
mm: (3,8...5,2)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 3,4...4,0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 6,1...6,7
3rd speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump
pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 1000
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 300
LDA stroke mm: 6,4
Del. quantity cm³/: 84,0...85,0
1000H.: (82,2...86,8)
2nd speed 1/min: 2200
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2100
Charge press. hPa: 1000
Del. quantity cm³/: 14,5...20,5
1000H.: (13,5...21,5)
4th speed 1/min: 1900
Charge press. hPa: 1000
Del. quantity cm³/: 85,0...88,0
1000H.: (83,5...89,5)
5th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/: 93,5...94,5
1000H.: (91,7...96,3)
6th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 97,7...100,3
1000H.: (96,7...101,3)
7th speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/: 96,5...99,5
1000H.: (95,0...101,0)
8th speed 1/min: 650
Charge press. hPa: -

Del.quantity cm³/: 58,5...59,5
1000H: (56,7...61,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del.quantity cm³/: 23,0..27,0
1000H.: (20,0..30,0)
2nd speed 1/min: 400
Del.quantity cm³/: 7,0...13,0
1000H.: (5,5..14,5)
3rd speed 1/min: 480
Del.quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del.quantity cm³/: -
ind. 1000H: 74,0

2nd speed 1/min: 540
Del.quantity cm³/: -
max. 1000H : 72,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,1...5,4
MS mm : 0,9..1,15
SVS max. mm : 4,1

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 LS
 Edition : 04.11.87
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE 6/12F1250 R173-9
 Type number : 0 460 426 102

Customer-specific information
 Customer : CUMMINS

Engine : 6 BTA -590 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C

with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0,5

Test inj. tubing : 1 688 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : 0,3
 (from BDC) : +/-0,02 (0,04)

Start of delivery block
 Piston stroke mm: 1,85
 mm: +/-0,02 (0,06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
 Charge press. hPa: 1000

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 84,5...85,5
 Dispersion cm³/ : 4,0
 1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 8,0...14,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H: 59,0...65,0

Start:

Speed 1/min: 100
 Charge press. hPa: -
 Del.quantity : -
 mind cm³/1000H.: 70,0

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 600
Charge press.	hPa: 1000
TD travel	mm: 0,4...1,2
	mm: (0,1...1,5)
2nd speed	1/min: 750
Charge press.	hPa: 1000
TD travel	mm: 1,3...1,7
	mm: (0,8...2,2)
3rd speed	1/min: 1050
Charge press.	hPa: 1000

TD travel mm: 2,0...2,8
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
3rd speed 1/min: 1750
Charge press. hPa: 1000
Overflow quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 4,5
Del.quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1370
Charge press. hPa: 1000
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1300
Charge press. hPa: 1000
Del.quantity cm³/: 59,0...65,0
1000H.: (56,0...68,0)
6th speed 1/min: 1250
Charge press. hPa: 1000
Del.quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 1050
Charge press. hPa: 1000

Del.quantity cm³/: 80,5...83,5
1000H.: (78,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/: 84,5...85,5
1000H.: (82,0...88,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del.quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
10th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 68,5...69,5
1000H.: (65,0...73,0)
11th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 84,0...92,0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0,3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Del.quantity cm³/: -
ind. 1000H: 70,0

2nd speed 1/min: 400
Del.quantity cm³/: -
max. 1000H: 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm : -
KF	mm : 5,1...5,4
MS	mm : 1,1...1,35
SVS max.	mm : 2,0
XK	mm : 18,8...20,8
XL	mm : 13,8...17,2

Remarks:

:
Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,7 A
 Edition : 04.11.87
 replaces : 16.12.86
 Calibrating oil : ISO-4113

Injection pump : VE 4/ 8F2300 R171
 Type number : 0 460 484 010

Customer-specific information
 Customer : PEUGEOT

Engine : XUD7

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
 Setting value mm: 3,4...3,88

Supply-pump pressure:

Speed 1/min: 1250
 Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1250
 Del.quantity cm³/
 1000H.: 28,0...29,0
 Dispersion cm³/ : 2,0
 1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm³/
 1000H.: 8,0...12,0
 Dispersion cm³/ : 2,0
 1000H.: (3,0)
 Residual-Delivery Setting
 Speed 1/min: 550
 Del.quantity cm³/
 1000H.: 3,5...4,5

Full-load speed regulation:

Speed 1/min: 2440
 Del.quantity cm³/
 1000H: 19,0...25,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
 Test specifications in parentheses

1st speed 1/min: 800
 TD travel mm: 0,8...1,6
 mm: (0,5...1,9)
 2nd speed 1/min: 1250
 TD travel mm: 3,4...3,8
 mm: (2,9...4,3)
 3rd speed 1/min: 2000
 TD travel mm: 7,5...8,3
 mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump pressure bar: 3,0...3,6
 2nd speed 1/min: 1250
 Supply-pump pressure bar: 4,3...4,9
 3rd speed 1/min: 2000
 Supply-pump pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2250
Overflow quantity cm³/10s: 55...138
 (26...98)
 (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del. quantity cm³/: 3,5...10,5
 1000H.: -
2nd speed 1/min: 2540
Del. quantity cm³/: 11,5...17,5
 1000H.: (10,0...19,0)
3rd speed 1/min: 2440
Del. quantity cm³/: 19,0...25,0
 1000H.: (18,0...26,0)
4th speed 1/min: 2250
Del. quantity cm³/: 27,0...29,0
 1000H.: (25,7...30,3)
5th speed 1/min: 2000
Del. quantity cm³/: 27,5...29,5
 1000H.: (26,2...30,8)
6th speed 1/min: 1250
Del. quantity cm³/: 28,0...29,0
 1000H.: (26,2...30,8)
7th speed 1/min: 800
Del. quantity cm³/: 28,0...30,0
 1000H.: (26,0...32,0)
8th speed 1/min: 500
Del. quantity cm³/: 28,0...31,0
 1000H.: (26,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...12,0
 1000H.: (6,0...14,0)

High Idle:

Speed 1/min: 450
Del. quantity cm³/: 8,0...12,0
 1000H.: (6,0...14,0)

Residual:

Speed 1/min: 550
Del. quantity cm³/: 3,5...4,5
 1000H.: (2,5...5,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H: 34,0
2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H : 64,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,2...5,5
MS	mm : 1,3...1,5
SVS max.	mm : 3,0
XK	mm : 18,9...20,9
XL	mm : 12,2...15,6

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,7 A1

Edition : 04.11.87

replaces :

Calibrating oil : ISO-4113

Injection pump : VE 4/ 8F2300 R171-1
Type number : 0 460 484 014

Customer-specific information
Customer : PEUGEOT

Engine : XUD7

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C

with thermometer : 40...48

electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6

x Wall thickness : 2

x Length mm : 450

Start of delivery

Prestroke mm : -
(from BDC) : -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250

Setting value mm: 3,4...3,88

Supply-pump pressure:

Speed 1/min: 1250

Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm³/
1000H.: 28,0...29,0
Dispersion cm³/ : 2,0
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 8,0...12,0
Dispersion cm³/ : 2,0
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm³/
1000H.: 3,5...4,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm³/
1000H.: 19,0...25,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
TD travel mm: 0,8...1,6
mm: (0,5...1,9)
2nd speed 1/min: 1250
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 2000
TD travel mm: 7,5...8,3
mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump pressure bar: 3,0...3,6
2nd speed 1/min: 1250
Supply-pump pressure bar: 4,3...4,9
3rd speed 1/min: 2000
Supply-pump pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del.quantity cm³/: 3,5...10,5
1000H.: -
2nd speed 1/min: 2500
Del.quantity cm³/: 11,5...17,5
1000H.: (11,0...18,0)
3rd speed 1/min: 2400
Del.quantity cm³/: 19,0...25,0
1000H.: (18,5...25,5)
4th speed 1/min: 2250
Del.quantity cm³/: 27,0...29,0
1000H.: (25,7...30,3)
5th speed 1/min: 2000
Del.quantity cm³/: 27,5...29,5
1000H.: (26,2...30,8)
6th speed 1/min: 1250
Del.quantity cm³/: 28,0...29,0
1000H.: (26,2...30,8)
7th speed 1/min: 800
Del.quantity cm³/: 28,0...30,0
1000H.: (26,0...32,0)
8th speed 1/min: 500
Del.quantity cm³/: 28,0...31,0
1000H.: (26,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del.quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8,0...12,0
1000H.: (6,0...14,0)

High Idle:

Speed 1/min: 450
Del.quantity cm³/: 8,0...12,0
1000H.: (6,0...14,0)

Residual:

Speed 1/min: 550
Del.quantity : 3,5...4,5
1000H.: (2,5...5,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm³/: -
ind. 1000H: 34,0

2nd speed 1/min: 300
Del.quantity cm³/: -
max. 1000H: 64,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,2...5,5
MS	mm : 1,3...1,5
SVS max.	mm : 3,0
XK	mm : 18,9...20,9
XL	mm : 12,2...15,6

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 1,6U
 Edition : 2.11.87
 replaces : 4.84
 Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R48
 Type number : 0 460 494 039

Customer-specific information
 Customer : VW

Engine : EA 162/1,6L

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
 Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 1500
 Setting value bar: 4,8...5,4

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/
 1000H.: 33,0...34,0
 Dispersion cm³/ : 2,5
 1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 415
 Del.quantity cm³/
 1000H.: 6,0...10,0
 Dispersion cm³/ : 2,0
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2300
 Del.quantity cm³/
 1000H: 12,5...16,5

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 35,0

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,4...2,2
	mm: (1,1...2,5)
2nd speed	1/min: 1500
TD travel	mm: 3,3...3,7
	mm: (2,8...4,2)
3rd speed	1/min: 2100
TD travel	mm: 5,4...6,2
	mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed	1/min: 600
Supply-pump pressure	bar: 2,6...3,2
2nd speed	1/min: 1500
Supply-pump pressure	bar: 4,8...5,4
3rd speed	1/min: 2100
Supply-pump pressure	bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed	1/min: 600
Overflow	: 41...111
quantity	cm ³ /10s: (26...126)
2nd speed	1/min: 2100
Overflow	: 55...138
quantity	cm ³ /10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2450
Del. quantity cm³/: 0...6,0
1000H.: -
2nd speed 1/min: 2300
Del. quantity cm³/: 12,5...16,5
1000H.: (10,5...18,5)
3rd speed 1/min: 2200
Del. quantity cm³/: 20,0...30,0
1000H.: (19,0...31,0)
4th speed 1/min: 2100
Del. quantity cm³/: 28,0...30,0
1000H.: (26,8...31,2)
5th speed 1/min: 1500
Del. quantity cm³/: 33,0...34,0
1000H.: (31,3...35,7)
6th speed 1/min: 600
Del. quantity cm³/: 21,5...24,5
1000H.: (20,0...26,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del. quantity cm³/: 0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 415
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del. quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 1200
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/: -
ind. 1000H: 17,0

2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H: 23,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...5,9
MS	mm : 1,3...1,5
SVS max.	mm : 4,8
FH	mm : 1,8...2,4
XK	mm : 18,6...20,6
XL	mm : 7,5...10,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6A
Edition : 3.11.87
replaces : 2.10.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R125
Type number : 0 460 494 122

Customer-specific information
Customer : FORD

Engine : 1,6L IDI

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 5,0...5,4
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750
Del.quantity cm³/
1000H.: 28,8...29,8
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/: 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm³/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/: 2,0
1000H.: (2,0)

Full-load speed regulation:

Speed 1/min: 2675
Del.quantity cm³/
1000H.: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
TD travel mm: 2,2...4,2
 mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 800
TD travel mm: 1,6...2,4
 mm: (1,3...2,7)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 5,0...5,4
 mm: (4,5...5,9)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2000
TD travel mm: 7,6...8,4
 mm: (7,3...8,7)

I KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,6...7,2
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...2,0
1000H.: -
2nd speed 1/min: 2675
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 7,5...13,5
1000H.: (6,5...14,5)
3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 18,5...26,5
1000H.: (17,5...27,5)
4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 27,2...29,2
1000H.: (26,0...30,4)
5th speed 1/min: 1750
KSB solenoid-operated
valve volt: 12,0

Del. quantity cm³/: 28,8...29,8
 1000H.: (27,1...31,5)
 6th speed 1/min: 1000
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 24,1...27,1
 1000H.: (23,4...27,8)
 7th speed 1/min: 600
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 23,0...26,0
 1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
 ELAB volt: -
 Del. quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 7,0...11,0
 1000H.: (5,0...13,0)
 2nd speed 1/min: 475
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 2,5...7,5
 1000H.: (0,5...9,5)
 3rd speed 1/min: 570
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 0,0...3,6
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: -
 ind. 1000H: 30,0

2nd speed 1/min: 500
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: -
 max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,6..1,85
SVS max.	mm : 4,0
XK	mm : 23,3...25,3
XL	mm : 10,4...13,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K2

Edition : 04.11.87

replaces :

Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2300 R162-4
Type number : 0 460 494 124

Customer-specific information

Customer : PEUGEOT

Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C

with thermometer : 40...48

electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6

x Wall thickness : 2

x Length mm : 450

Start of delivery

Prestroke mm : -

(from BDC) : -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250

Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250

Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm³/
1000H.: 29,5...30,5
Dispersion cm³/ : 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 7,0...9,0
Dispersion cm³/ : 2,5
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 550
Del.quantity cm³/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm³/
1000H.: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed	1/min: 800
TD travel	mm: 1,5...2,3
	mm: (1,2...2,6)
2nd speed	1/min: 1250
TD travel	mm: 4,0...4,4
	mm: (3,5...4,9)
3rd speed	1/min: 2000
TD travel	mm: 7,6...8,4
	mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed	1/min: 800
Supply-pump	pressure bar: 3,0...3,6
2nd speed	1/min: 1250
Supply-pump	pressure bar: 4,2...4,8
3rd speed	1/min: 2000
Supply-pump	pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2250
Overflow quantity cm³/10s: 55...138
 (26...98)
 (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del. quantity cm³/: 0,0...7,0
 1000H.: -
2nd speed 1/min: 2500
Del. quantity cm³/: 10,0...16,0
 1000H.: (9,0...17,0)
3rd speed 1/min: 2400
Del. quantity cm³/: 20,0...26,0
 1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm³/: 30,7...32,7
 1000H.: (29,7...33,7)
5th speed 1/min: 2000
Del. quantity cm³/: 31,6...33,6
 1000H.: (30,6...34,6)
6th speed 1/min: 1250
Del. quantity cm³/: 29,5...30,5
 1000H.: (28,0...32,0)
7th speed 1/min: 800
Del. quantity cm³/: 29,7...32,3
 1000H.: (29,0...33,0)
8th speed 1/min: 500
Del. quantity cm³/: 30,0...33,0
 1000H.: (29,5...33,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 7,0...9,0
 1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470
Del. quantity cm³/: 7,0...9,0
 1000H.: (4,0...12,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
 1000H.: (1,0...5,0)

Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1125
Del. quantity cm³/: 17,0...19,0
 1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,3...1,55
XK	mm : 17,0...19,0
XL	mm : 14,2...17,6

Remarks:

:
Setting of residual delivery.

Idle setting (LFG) according to VDT-I-460/135.

For adjustment of switching point (EGR valve), include 10.8 mm spacer at third fuel-delivery step.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 1,6 V9
 Edition : 03.11.87
 replaces : 09.85
 Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2400 R138
 Type number : 0 460 494 131

Customer-specific information
 Customer : VW

Engine : 086-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
 Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
 Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/ 1000H.: 31,5...32,5
 Dispersion cm³/: 2,5
 1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 475
 Del.quantity cm³/ 1000H.: 6,0...10,0
 Dispersion cm³/: 2,0
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
 Del.quantity cm³/ 1000H.: 12,0...16,0

Start:

Speed 1/min: 100
 Del.quantity cm³/ mind : -
 1000H.: 35,0

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,3...2,1 mm: (1,0...2,4)
2nd speed	1/min: 1500
TD travel	mm: 2,9...3,3 mm: (2,4...3,8)
3rd speed	1/min: 2400
TD travel	mm: 6,1...6,9 mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed	1/min: 600
Supply-pump pressure	bar: 2,2...2,8
2nd speed	1/min: 1500
Supply-pump pressure	bar: 4,3...4,9
3rd speed	1/min: 2400
Supply-pump pressure	bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed	1/min: 600
Overflow quantity	: 41...83 cm ³ /10s: (26...98)
2nd speed	1/min: 2400
Overflow quantity	: 55...138 cm ³ /10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2600
Del. quantity cm³/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2525
Del. quantity cm³/: 18,5...28,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
Del. quantity cm³/: 26,8...28,8
1000H.: (25,6...30,0)
5th speed 1/min: 1500
Del. quantity cm³/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del. quantity cm³/: 20,2...23,2
1000H.: (18,7...24,7)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del. quantity cm³/: 0,0...7,6
1000H.: -
3rd speed 1/min: 1200
Del. quantity cm³/: 0,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/: -
ind. 1000H: 18,0

2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	mm	:	3,2...3,4
K	mm	:	5,7...6,0
XF	mm	:	1,3...1,5
MS	mm	:	2,7
SVS max.	mm	:	1,8...2,4
FH	mm	:	17,0...19,0
XK	mm	:	9,8...13,2
XL	mm	:	

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 1,6 W2
Edition : 03.11.87
replaces : 09.85
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2400 R138-1
Type number : 0 460 494 140

Customer-specific information
Customer : VW

Engine : 086-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/
 1000H.: 31,5...32,5
 Dispersion cm³/: 2,5
 1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 450
 Del.quantity cm³/
 1000H.: 6,0...10,0
 Dispersion cm³/: 2,0
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
 Del.quantity cm³/
 1000H.: 12,0...16,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 35,0

Inspection-pump test specifications Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,3...2,1
	mm: (1,0...2,4)
2nd speed	1/min: 1500
TD travel	mm: 2,9...3,3
	mm: (2,4...3,8)
3rd speed	1/min: 2400
TD travel	mm: 6,1...6,9
	mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed	1/min: 600
Supply-pump pressure	bar: 2,2...2,8
2nd speed	1/min: 1500
Supply-pump pressure	bar: 4,3...4,9
3rd speed	1/min: 2400
Supply-pump pressure	bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed	1/min: 600
Overflow	: 41...83
quantity cm ³ /10s:	(26...98)
2nd speed	1/min: 2400
Overflow	: 55...138
quantity cm ³ /10s:	(40...153)

Delivery-quant. and breakaway char.:

1st speed	1/min: 2800
Del.quantity cm ³ /:	0,0...3,0
	1000H.: -
2nd speed	1/min: 2600
Del.quantity cm ³ /:	12,0...16,0
	1000H.: (10,0...18,0)
3rd speed	1/min: 2525
Del.quantity cm ³ /:	18,5...28,5
	1000H.: (17,5...29,5)
4th speed	1/min: 2400
Del.quantity cm ³ /:	26,8...28,8
	1000H.: (25,6...30,0)
5th speed	1/min: 1500
Del.quantity cm ³ /:	31,5...32,5
	1000H.: (29,8...34,2)
6th speed	1/min: 600
Del.quantity cm ³ /:	20,2...23,2
	1000H.: (18,7...24,7)

Zero delivery (stop):

Mech. shutoff:

Speed	1/min: 2400
Del.quantity cm ³ /:	0,3
	1000H.: -

Electr. shutoff:

Speed	1/min: 450
ELAB	volt: -
Del.quantity cm ³ /:	0,0...3,0
max.	1000H.: -

Idle delivery:

1st speed	1/min: 450
Del.quantity cm ³ /:	6,0...10,0
	1000H.: (4,0...12,0)
2nd speed	1/min: 650
Del.quantity cm ³ /:	0,0...5,0
	1000H.: -
3rd speed	1/min: 1200
Del.quantity cm ³ /:	0,0...7,0
	1000H.: -

Automatic starting fuel delivery:

1st speed	1/min: 400
Del.quantity cm ³ /:	-
ind.	1000H: 18,0
2nd speed	1/min: 500
Del.quantity cm ³ /:	-
max.	1000H: 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,3...1,5
SVS max.	mm	: 2,7
FH	mm	: 1,8...2,4

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW 1,6 E
Edition : 04.11.87
replaces : 12.83
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2000 R160
Type number : 0 460 494 149

Customer-specific information
Customer : VW

Engine : 068.5T-1,6L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 4,6...5,2

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm³/
1000H.: 42,5...43,5
Dispersion cm³/ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm³/
1000H.: 24,5...25,5

Low-idle speed regulation:

Speed 1/min: 475
Charge press. hPa: -
Del.quantity cm³/
1000H.: 6,0...10,0

Full-load speed regulation:

Speed 1/min: 2110
Charge press. hPa: 750
Del.quantity cm³/
1000H: 10,0...14,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,2...3,6
mm: (2,7...4,1)
3rd speed 1/min: 1980
Charge press. hPa: 750
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 1500

Charge press. hPa: 750
Supply-pump
pressure bar: 4,6...5,2
3rd speed 1/min: 1980
Charge press. hPa: 750
Supply-pump
pressure bar: 5,7...6,3

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1980
Charge press. hPa: 750
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 300
LDA stroke mm: 4,5
Del.quantity cm³/: 33,5...34,5
1000H.: (31,0...37,0)
2nd speed 1/min: 2150
Charge press. hPa: 750
Del.quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 2130
Charge press. hPa: 750
Del.quantity cm³/: 0,0...12,00
1000H.: -
4th speed 1/min: 2100
Charge press. hPa: 750
Del.quantity cm³/: 5,0...29,0
1000H.: -
5th speed 1/min: 2090
Charge press. hPa: 750
Del.quantity cm³/: 12,0...36,0
1000H.: -
6th speed 1/min: 2060
Charge press. hPa: 750
Del.quantity cm³/: 29,0...53,0
1000H.: -
7th speed 1/min: 1980
Charge press. hPa: 750
Del.quantity cm³/: 40,0...42,0
1000H.: (38,8...43,2)
8th speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm³/: 42,5...43,5
1000H.: (40,8...45,2)
9th speed 1/min: 1000
Charge press. hPa: 300
Del.quantity cm³/: 33,5...34,5
1000H.: (31,0...37,0)
10th speed 1/min: 600

Charge press. hPa: -
Del.quantity cm³/: 24,5...25,5
1000H: (22,0...28,0)
11th speed 1/min: 600
Charge press. hPa: 750
Del.quantity cm³/: 31,0...34,0
1000H: (29,5...35,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del.quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 600
Del.quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
Del.quantity cm³/: -
ind. 1000H: 32,0

2nd speed 1/min: 450
Del.quantity cm³/: -
max. 1000H: 18,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,2..1,45

Remarks:

:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A1

Edition : 03.11.87

replaces : 03.10.86

Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F1800 R125-1

Type number : 0 460 494 168

Customer-specific information

Customer : FORD

Engine : 1,6L IDI IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C

with thermometer : 40...48

electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6

x Wall thickness : 2

x Length mm : 450

Start of delivery

Prestroke mm : -
(from BDC) : -

injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500

Setting value mm: 5,0...5,4

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500

Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1000

Del.quantity cm³/
1000H.: 25,1...26,1

KSB solenoid-operated
valve volt: 12,0

Dispersion cm³/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 440

Del.quantity cm³/
1000H.: 7,0...11,0

KSB solenoid-operated
valve volt: 12,0

Dispersion cm³/: 2,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 1850

Del.quantity cm³/
1000H.: 20,0...26,0

KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100

Del.quantity : -
mind cm³/1000H.: 50,0

KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600

TD travel mm: 2,2...4,2
mm: -

KSB solenoid-operated
valve volt: -

2nd speed 1/min: 800

TD travel mm: 1,6...2,4
mm: (1,3...2,7)

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 1500

TD travel mm: 5,0...5,4
mm: (4,5...5,9)

KSB solenoid-operated
valve volt: 12,0

4th speed 1/min: 1750

TD travel mm: 6,3...7,1
mm: (6,0...7,4)
KSB solenoid-operated valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 3,1...3,7
KSB solenoid-operated valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump pressure bar: 5,3...5,9
KSB solenoid-operated valve volt: 12,0
3rd speed 1/min: 1750
Supply-pump pressure bar: 5,9...6,5
KSB solenoid-operated valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated valve volt: 12,0
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 1750
KSB solenoid-operated valve volt: 12,0
Overflow quantity cm³/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 2050
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 0,0...2,0
1000H.: -
2nd speed 1/min: 1910
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 7,5...15,5
1000H.: (6,5...16,5)
3rd speed 1/min: 1850
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 1750
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 28,3...30,3
1000H.: (27,1...31,5)
5th speed 1/min: 1000

| KSB solenoid-operated valve volt: 12,0
| Del.quantity cm³/: 25,1...26,1
| 1000H.: (23,4...27,8)
| 6th speed 1/min: 600
| KSB solenoid-operated valve volt: 12,0
| Del.quantity cm³/: 23,0...26,0
| 1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 7,0...11,0
1000H.: (5,0...13,0)
2nd speed 1/min: 475
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 2,5...7,5
1000H.: (0,5...9,5)
3rd speed 1/min: 570
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 0,0...3,6
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: -
ind. 1000H: 30,0

2nd speed 1/min: 500
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	3,2...3,4
KF	mm	:	5,7...6,0
MS	mm	:	1,6..1,85
SVS max.	mm	:	4,0
XK	mm	:	23,3...25,3
XL	mm	:	10,4...13,8

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E
 Edition : 28.08.87
 replaces : 02.87
 Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215
 Type number : 0 460 494 174

Customer-specific information
 Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 680 901 000

Opening
 pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery

Indicator setting:
 Piston stroke mm: 0,90
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
 Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
 Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/
 1000H.: 31,3...32,3
 Dispersion cm³/: 2,5
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
 Del.quantity cm³/
 1000H.: 6,0...10,0
 Dispersion cm³/: 2,5
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
 Del.quantity cm³/
 1000H: 17,0...23,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,5...2,3
	mm: (1,2...2,6)
2nd speed	1/min: 1500
TD travel	mm: -
	mm: (3,2...4,6)
3rd speed	1/min: 2300
TD travel	mm: 6,9...7,7
	mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed	1/min: 400
Supply-pump pressure	bar: 1,7...2,3
2nd speed	1/min: 1000
Supply-pump pressure	bar: 3,5...4,1
3rd speed	1/min: 2300
Supply-pump pressure	bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600

Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2300
Overflow quantity cm³/10s: 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del.quantity cm³/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del.quantity cm³/: 5,0...11,0
1000H.: (4,0...12,0)
3rd speed 1/min: 2575
Del.quantity cm³/: -
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del.quantity cm³/: 29,2...31,8
1000H.: (28,2...32,8)
5th speed 1/min: 1500
Del.quantity cm³/: 31,3...32,3
1000H.: (29,5...34,1)
6th speed 1/min: 600
Del.quantity cm³/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del.quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del.quantity cm³/: 2,0...7,0
1000H.: (0,5...8,5)
3rd speed 1/min: 1200
Del.quantity cm³/: 0,0...2,0
1000H.: -
4th speed 1/min: 1800
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del.quantity cm³/: -
ind. 1000H: 30,0
2nd speed 1/min: 400

Del.quantity cm³/: -
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 0,9...1,1
XK	mm : 17,0...19,0
XL	mm : 10,6...14,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E1
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-1
Type number : 0 460 494 175

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0,90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm³/
1000H.: 31,3...32,3
Dispersion cm³/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm³/
1000H.: 6,0...10,0
Dispersion cm³/: 2,5
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
Del.quantity cm³/
1000H.: 17,0...23,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications: in parentheses

1st speed 1/min: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1500
TD travel mm: 3,7...4,1
mm: (3,2...4,6)
3rd speed 1/min: 2300
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump pressure bar: 1,7...2,3
2nd speed 1/min: 1000
Supply-pump pressure bar: 3,5...4,1
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600

Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2300
Overflow quantity cm³/10s: 55...138
1000H.: (26...98)
1000H.: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Del.quantity cm³/: -
1000H.: 0,0...5,0
2nd speed 1/min: 2735
Del.quantity cm³/: 5,0...11,0
1000H.: (4,0...12,0)
3rd speed 1/min: 2575
Del.quantity cm³/: 17,0...23,0
1000H.: (16,0...24,0)
4th speed 1/min: 2300
Del.quantity cm³/: 29,2...31,8
1000H.: (28,2...32,8)
5th speed 1/min: 1500
Del.quantity cm³/: 31,3...32,3
1000H.: (29,5...34,1)
6th speed 1/min: 600
Del.quantity cm³/: 23,8...26,8
1000H.: (22,3...28,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

Mfg. date: until : -
1st speed 1/min: 425
Del.quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del.quantity cm³/: 2,0...7,0
1000H.: (1,0...8,0)
3rd speed 1/min: 1200
Del.quantity cm³/: 0,0...2,0
1000H.: -
4th speed 1/min: 1800
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del.quantity cm³/: -
ind. 1000H: 30,0
2nd speed 1/min: 400

Del. quantity cm³/ : -
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 0,9...1,1
XK mm : 18,7...20,7
XL mm : 10,1...13,5

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet :
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-2
Type number : 0 460 494 176

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0.90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/
 1000H.: 31,3...32,3
 Dispersion cm³/: 2,5
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
 Del.quantity cm³/
 1000H.: 6,0...10,0
 Dispersion cm³/: 2,5
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
 Del.quantity cm³/
 1000H.: 17,0...23,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 40,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,5...2,3
	mm: (1,2...2,6)
2nd speed	1/min: 1500
TD travel	mm: -
	mm: (3,2...4,6)
3rd speed	1/min: 2300
TD travel	mm: 6,9...7,7
	mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed	1/min: 400
Supply-pump pressure	bar: 1,7...2,3
2nd speed	1/min: 1000
Supply-pump pressure	bar: 3,5...4,1
3rd speed	1/min: 2300
Supply-pump pressure	bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed	1/min: 500
Overflow	: 55...138
quantity cm ³ /10s:	(40...153)
2nd speed	1/min: 2300
Overflow	: 55...138
quantity cm ³ /10s:	(40...153)

Delivery-quant. and breakaway char.:

1st speed	1/min: 2950
Del.quantity cm ³ /:	-
	1000H.: 0,0...5,0
2nd speed	1/min: 2735
Del.quantity cm ³ /:	6,5...13,5
	1000H.: (6,0...14,0)
3rd speed	1/min: 2575
Del.quantity cm ³ /:	-
	1000H.: (16,0...24,0)
4th speed	1/min: 2300
Del.quantity cm ³ /:	29,25...31,75
	1000H.: (28,3...32,7)
5th speed	1/min: 1500
Del.quantity cm ³ /:	-
	1000H.: (29,6...34,0)
6th speed	1/min: 600
Del.quantity cm ³ /:	23,8...26,8
	1000H.: (22,3...28,3)

Zero delivery (stop):

Mech. shutoff:

Speed	1/min: 2300
Del.quantity cm ³ /:	-
	1000H.: -

Idle delivery:

Mfg. date:	until : -
1st speed	1/min: 425
Del.quantity cm ³ /:	-
	1000H.: (4,0...12,0)
2nd speed	1/min: 500
Del.quantity cm ³ /:	2,0...7,0
	1000H.: (0,5...8,5)
3rd speed	1/min: 1200
Del.quantity cm ³ /:	0,0...2,0
	1000H.: -

Automatic starting fuel delivery:

1st speed	1/min: 300
Del.quantity cm ³ /:	-
in l.	1000H: 30,0
2nd speed	1/min: 400
Del.quantity cm ³ /:	-
max.	1000H : 30,0

Shutoff electromagnet:

Cut-in	
min. voltage	: 10,0
Rated voltage	: 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	3,2...3,4
KF	mm	:	5,7...6,0
MS	mm	:	0,9...1,1
SVS max.	mm	:	3,9
XK	mm	:	17,0...20,0
XL	mm	:	10,6...14,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,6 E3
Edition : 28.08.87
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R215-3
Type number : 0 460 494 177

Customer-specific information
Customer : OPEL

TEST BENCH REQUIREMENTS

Calibrating-oil $^{\circ}\text{C}$
return temp. $^{\circ}\text{C}$
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 680 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 0.90
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3,7...4,1

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,9...5,5

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del.quantity cm³/
 1000H.: 31,3...32,3
 Dispersion cm³/: 2,5
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 425
 Del.quantity cm³/
 1000H.: 6,0...10,0
 Dispersion cm³/: 2,5
 1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2575
 Del.quantity cm³/
 1000H.: 17,0...23,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 40,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications Test specifications in parentheses

1st speed	1/min: 1000
TD travel	mm: 1,5...2,3
	mm: (1,2...2,6)
2nd speed	1/min: 1500
TD travel	mm: -
	mm: (3,2...4,6)
3rd speed	1/min: 2300
TD travel	mm: 6,9...7,7
	mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed	1/min: 400
Supply-pump pressure	bar: 1,7...2,3
2nd speed	1/min: 1000
Supply-pump pressure	bar: 3,5...4,1
3rd speed	1/min: 2300
Supply-pump pressure	bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 500

Overflow quantity cm³/10s: (40...153)
 2nd speed 1/min: 2300
 Overflow quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed	1/min: 2950
Del.quantity cm ³ /:	-
	1000H.: 0,0...5,0
2nd speed	1/min: 2735
Del.quantity cm ³ /:	6,5...13,5
	1000H.: (6,0...14,0)
3rd speed	1/min: 2575
Del.quantity cm ³ /:	-
	1000H.: (16,0...24,0)
4th speed	1/min: 2300
Del.quantity cm ³ /:	29,25...31,75
	1000H.: (28,3...32,7)
5th speed	1/min: 1500
Del.quantity cm ³ /:	-
	1000H.: (29,6...34,0)
6th speed	1/min: 600
Del.quantity cm ³ /:	23,8...26,8
	1000H.: (22,3...28,3)

Zero delivery (stop):

Mech. shutoff:

Speed	1/min: 2300
Del.quantity cm ³ /:	-
	1000H.: -

Idle delivery:

Mfg. date:	until : -
1st speed	1/min: 425
Del.quantity cm ³ /:	-
	1000H.: (4,0...12,0)
2nd speed	1/min: 500
Del.quantity cm ³ /:	2,0...7,0
	1000H.: (0,5...8,5)
3rd speed	1/min: 1200
Del.quantity cm ³ /:	0,0...2,0
	1000H.: -

Automatic starting fuel delivery:

1st speed	1/min: 300
Del.quantity cm ³ /:	-
ind.	1000H: 30,0
2nd speed	1/min: 400
Del.quantity cm ³ /:	-
max.	1000H: 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 0,9...1,1
XK	mm : 18,7...20,7
XL	mm : 10,1...13,5

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A2
Edition : 03.11.87
replaces : 03.10.86
Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2400 R125-2
Type number : 0 460 494 186

Customer-specific information
Customer : FORD

Engine : 1,6 L. IDI IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 4,3...4,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750
Del. quantity cm³/
1000H.: 28,8...29,8

KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 440
Del. quantity cm³/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/: 2,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 2675
Del. quantity cm³/
1000H.: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 50,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 600
TD travel mm: 2,2...4,2
mm: -
KSB solenoid-operated
valve : volt: -
2nd speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2000

TD travel mm: 6,8...7,6
mm: (6,5...7,9)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 3,1...3,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump pressure bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2000
Supply-pump pressure bar: 6,6...7,2
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...2,0
1000H.: -
2nd speed 1/min: 2675
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,5...13,5
1000H.: (6,5...14,5)
3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 18,5...26,5
1000H.: (17,5...27,5)
4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 27,2...29,2
1000H.: (26,0...30,4)
5th speed 1/min: 1750

KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 28,8...29,8
 1000H.: (27,1...31,5)
 6th speed 1/min: 1000
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 24,1...27,1
 1000H.: (23,4...27,8)
 7th speed 1/min: 600
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 23,0...26,0
 1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
 ELAB volt: -
 Del. quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 7,0...11,0
 1000H.: (5,0...13,0)
 2nd speed 1/min: 475
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 2,5...7,5
 1000H.: (0,5...9,5)
 3rd speed 1/min: 570
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 0,0...3,6
 1000H.: -

Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1100
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: 10,6..11,6
 1000H.: 9,1...13,1

Automatic starting fuel delivery:

1st speed 1/min: 400
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: -
 ind. 1000H: 30,0

2nd speed 1/min: 500
 KSB solenoid-operated
 valve volt: 12,0
 Del. quantity cm³/: -
 max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,6..1,85
SVS max.	mm : 3,4

For adjustment of switching point (EGR valve), include 12.0 mm spacer at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 D

Edition : 04.11.87

replaces :

Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2300 R162-1
Type number : 0 460 494 195

Customer-specific information

Customer : PEUGEOT

Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C

with thermometer : 40...48

electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6

x Wall thickness : 2

x Length mm : 450

Start of delivery

Prestroke mm : -
(from BDC) : -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250

Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1250

Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm³/
1000H.: 29,5...30,5
Dispersion cm³/ : 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 8,5...10,5
Dispersion cm³/ : 2,0
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm³/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm³/
1000H: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed	1/min: 800
TD travel	mm: 0,7...1,5
	mm: (0,4...1,8)
2nd speed	1/min: 1250
TD travel	mm: 3,2...3,6
	mm: (2,7...4,1)
3rd speed	1/min: 2000
TD travel	mm: 7,5...8,3
	mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed	1/min: 800
Supply-pump pressure	bar: 2,6...3,2
2nd speed	1/min: 1250
Supply-pump pressure	bar: 3,9...4,5
3rd speed	1/min: 2000
Supply-pump pressure	bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2300
Overflow quantity cm³/10s: 55...138
 (26...98) (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del. quantity cm³/: 0,0...7,0
 1000H.: -
2nd speed 1/min: 2540
Del. quantity cm³/: 11,5...17,5
 1000H.: (10,5...18,5)
3rd speed 1/min: 2440
Del. quantity cm³/: 20,0...26,0
 1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm³/: 29,8...31,8
 1000H.: (28,8...32,8)
5th speed 1/min: 2000
Del. quantity cm³/: 30,6...32,6
 1000H.: (29,6...33,6)
6th speed 1/min: 1250
Del. quantity cm³/: 29,5...30,5
 1000H.: (28,0...32,0)
7th speed 1/min: 800
Del. quantity cm³/: 30,7...33,3
 1000H.: (30,0...34,0)
8th speed 1/min: 500
Del. quantity cm³/: 29,5...32,5
 1000H.: (29,0...33,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,5...10,5
 1000H.: (5,5...13,5)

High Idle:

Speed 1/min: 470
Del. quantity cm³/: 8,0...10,0
 1000H.: (5,0...13,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
 1000H.: (1,0...5,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
 ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm³/: -
 max. 1000H: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,4..1,55
SVS max.	mm : 3,0
XK	mm : 17,0...19,0
XL	mm : 11,5...14,9

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K1

Edition : 04.11.87

replaces :

Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2300 R162-2
Type number : 0 460 494 215

Customer-specific information
Customer : PEUGEOT

Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm³/
1000H.: 29,5...30,5
Dispersion cm³/ : 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 7,0...9,0
Dispersion cm³/ : 2,5
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm³/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm³/
1000H: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

1st speed 1/min: 800
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 1250
TD travel mm: 4,0...4,4
mm: (3,5...4,9)
3rd speed 1/min: 2000
TD travel mm: 7,6...8,4
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump pressure bar: 3,0...3,6
2nd speed 1/min: 1250
Supply-pump pressure bar: 4,2...4,8
3rd speed 1/min: 2000
Supply-pump pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Overflow quantity cm³/10s: 41...83
 2nd speed 1/min: 2250
 Overflow quantity cm³/10s: 55...138
 3rd speed 1/min: 2400
 Overflow quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
 Del. quantity cm³/: 0,0...7,0
 1000H.: -
 2nd speed 1/min: 2500
 Del. quantity cm³/: 10,0...16,0
 1000H.: (9,0...17,0)
 3rd speed 1/min: 2400
 Del. quantity cm³/: 20,0...26,0
 1000H.: (19,0...27,0)
 4th speed 1/min: 2250
 Del. quantity cm³/: 30,7...32,7
 1000H.: (29,7...33,7)
 5th speed 1/min: 2000
 Del. quantity cm³/: 31,6...33,6
 1000H.: (30,6...34,6)
 6th speed 1/min: 1250
 Del. quantity cm³/: 29,5...30,5
 1000H.: (28,0...32,0)
 7th speed 1/min: 800
 Del. quantity cm³/: 29,7...32,3
 1000H.: (29,0...33,0)
 8th speed 1/min: 500
 Del. quantity cm³/: 30,0...33,0
 1000H.: (29,5...33,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
 ELAB volt: -
 Del. quantity cm³/: -
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del. quantity cm³/: 7,0...9,0
 1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470
 Del. quantity cm³/: 7,0...9,0
 1000H.: (4,0...12,0)

Residual:

Speed 1/min: 550
 Del. quantity : 2,5...3,5
 1000H.: (1,0...5,0)

Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1125
 Del. quantity cm³/: 17,0...19,0
 1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Del. quantity cm³/: -
 ind. 1000H: 20,0

2nd speed 1/min: 300
 Del. quantity cm³/: -
 max. 1000H: 45,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,3...1,55
XK	mm : 17,0...19,0
XL	mm : 14,2...17,6

Remarks:

:
 Setting of residual delivery.

Idle setting (LFG) according to VDT-I-460/135.

For adjustment of switching point (EGR valve), include 10.8 mm spacer at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K
 Edition : 04.11.87
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE 4/ 9F2300 R162-3
 Type number : 0 460 494 223

Customer-specific information
 Customer : PEUGEOT

Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
 Setting value mm: 3,2...3,6

Supply-pump pressure:

Speed 1/min: 1250
 Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1250
 Del.quantity cm³/
 1000H.: 29,5...30,5
 Dispersion cm³/ : 2,5
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm³/
 1000H.: 8,5...10,5
 Dispersion cm³/ : 2,5
 1000H.: (3,5)
 Residual-Delivery Setting
 Speed 1/min: 550
 Del.quantity cm³/
 1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2440
 Del.quantity cm³/
 1000H: 20,0...26,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 24,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
 Test specifications in parentheses

1st speed	1/min: 800
TD travel	mm: 0,7...1,5
	mm: (0,4...1,8)
2nd speed	1/min: 1250
TD travel	mm: 3,2...3,6
	mm: (2,7...4,1)
3rd speed	1/min: 2000
TD travel	mm: 7,5...8,3
	mm: (7,2...8,6)

Supply-pump pressure characteristic:

1st speed	1/min: 800
Supply-pump pressure	bar: 2,6...3,2
2nd speed	1/min: 1250
Supply-pump pressure	bar: 3,9...4,5
3rd speed	1/min: 2000
Supply-pump pressure	bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2300
Overflow quantity cm³/10s: 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2690
Del. quantity cm³/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2540
Del. quantity cm³/: 11,5...17,5
1000H.: (10,5...18,5)
3rd speed 1/min: 2440
Del. quantity cm³/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm³/: 29,8...31,8
1000H.: (28,8...32,8)
5th speed 1/min: 2000
Del. quantity cm³/: 30,6...32,6
1000H.: (29,6...33,6)
6th speed 1/min: 1250
Del. quantity cm³/: 29,5...30,5
1000H.: (28,0...32,0)
7th speed 1/min: 800
Del. quantity cm³/: 30,7...33,3
1000H.: (30,0...34,0)
8th speed 1/min: 500
Del. quantity cm³/: 29,5...32,5
1000H.: (29,0...33,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,5...10,5
1000H.: (5,5...13,5)

High Idle:

Speed 1/min: 470
Del. quantity cm³/: 8,0...10,0
1000H.: (5,0...13,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
1000H.: (1,0...5,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,2...3,4
KF	mm : 5,7...6,0
MS	mm : 1,4..1,55
SVS max.	mm : 3,0
XK	mm : 17,0...19,0
XL	mm : 11,5...14,9

Remarks:

Setting of residual delivery.

Idle setting (LFG) according to
VDT-I-460/135.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 G 32

Edition : 02.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : D 400 463 155

Injection pump

Pump designation : PES3A80D410/3RS1350

EP type number : 0 410 483 023

Governor

Governor design. : RSV325...1175A8C2223
-1L

Governor no. : 0 420 232 483

Customer-spec. information

Customer : KHD

Engine : F3L912

1st version kW : 38.0

Speed 1/min: 2350

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 2

SD ang. spacing°CS: 0-120-240

Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 10.90...11.00

Del.quantity cm³/ : 5.5...5.6

100H.: (5.4...5.8)

Dispersion cm³/ : 0.2

100H.: (0.3)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm³/ : 0.8...1.4

100H.: (0.6...1.5)

Dispersion cm³/ : 0.2

100H.: (0.3)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 5.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm³/ : 55.5...56.5

1000H.: (54.0...58.0)

Dispersion cm³/ : 2.50

1000H.: (3.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1215...1225

2nd c-rod trav.mm : 4.00

Speed 1/min : 1245...1275

3rd c-rod trav.mm : 4.00
Speed 1/min : 1250...1280
4th speed 1/min : 1425
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 325
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 455...585

TORQUE CONTROL

Dimension a mm : 0.85
Torque-control curve - 1st version
1st speed 1/min : 1175
C-rod trav.mm : 10.10...10.20
2nd speed 1/min : 500
C-rod trav.mm : 10.90...11.00
3rd speed 1/min : 1050
C-rod trav.mm : 10.40...10.60

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 1175
Del.quantity cm³/ 1000H.: 56.0...60.0
1000H.: (54.0...62.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.10
Speed 1/min : 1215...1225

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 100.0...110.0
1000H.: (97.0...113.0)
Contr.-rod trav.mm: 17.00...17.30

Remarks: : RENAULT

APPLICATION
Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RAB 9,7 B
Edition : 02.11.87
Superceeded : 14.11.86
Calibrating oil : ISO-4113

Combination no. : 0 400 846 514

Injection pump
Pump designation : PES6A95D420LS2595
EP type number : 0 410 896 930
Governor
Governor design. : RQ200/1100AB1094-1R
Governor no. : 0 420 201 637

Customer-spec. information

Customer : RABA

Engine : D2356HM6U

1st version kW : 162.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.05)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence	: 1- 5- 3- 6- 2- 4	Setting point w/out aux. spring
SD ang. spacing ⁰ CS:	0-60-120-180-240-300	Speed 1/min : 200
Tolerance + - ⁰	: 0.50 (0.75)	Contr.-rod trav.mm: 6.5
SD mark cyl. no.	: 1	Testing:
BASIC SETTING		Speed 1/min : 100
1st speed	1/mi: 1100	C-rod trav.mm min : 8.00
Contr.-rod trav.mm:	11.30...11.40	Speed 1/min : 200
Del.quantity cm ³ /	: 11.4...11.6	C-rod trav.mm : 6.40...6.60
	-----	C-rod trav.mm : 2.00
100H.:	(11.2...11.8)	Speed 1/min : 290...330
Dispersion	cm ³ / : 0.3	Speed 1/min : 400
	-----	C-rod trav.mm max : 1.00
100H.:	(0.6)	TORQUE CONTROL
2nd speed	1/min: 200.0	Torque-control curve - 1st version
Contr.-rod trav. m:	6.6...6.8	1st speed 1/min : 1100
Del.quantity cm ³ /	: 0.8...1.4	C-rod trav.mm : 11.30...11.40
	100H. : (0.5...1.6)	2nd speed 1/min : 500
Dispersion	cm ³ / : 0.3	C-rod trav.mm : 11.90...12.00
	100H. : (0.5)	3rd speed 1/min : 750
SLEEVE POSITION		C-rod trav.mm : 11.80...12.00
Control-lever position		4th speed 1/min : 800
Degree:	-2	C-rod trav.mm : 11.60...11.90
Speed	1/min: 550	SWITCH-OVER POINT
Cont.-rod trav.mmm:	19.20...20.80	Speed 1/min : 140 (160)
FULL-LOAD DELIV. AT FULL-LOAD STOP		FUEL-DELIVERY CHARACTERISTICS
1st version		1st version
Speed	1/min: 1100	Speed 1/min : 500
Del.quantity cm ³ /	: 114.0...116.0	Del.quantity cm ³ / : 0.0...110.0
	1000H. : (112.0...118.0)	1000H. : (0.0...112.5)
Dispersion	cm ³ / : 3.00	Speed 1/min : 800
	1000H. : (6.00)	Del.quantity cm ³ / : 112.0...118.0
		1000H. : (109.5...120.5)
HIGHEST RATED SPEED		SETTING CONTROL-ROD STOP
1st version		Speed 1/min : 500
Setting point:		ROTATIONAL-SPEED LIMITATION
Speed	1/min : 550	1st version
Contr.-rod trav.mm:	20.0	1mm control-rod travel less than
Testing:		full-load trav.mm: 10.30
1st c-rod trav.mm :	10.30	Speed 1/min : 1145...1160
Speed	1/min : 1145...1160	STARTING FUEL DELIVERY
2nd c-rod trav.mm :	4.00	Speed 1/min : 100
Speed	1/min : 1185...1215	Contr.-rod trav.mm: 17.10...17.50
LOWEST RATED SPEED I		Remarks:

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : LIE 8,4 B 1
 Edition : 02.11.87
 Superceeded : 9.3.87
 Calibrating oil : ISO-4113

Combination no. : 0 400 846 562

Injection pump
 Pump designation : PES6A100D410RS2687
 EP type number : 0 410 806 001
 Governor
 Governor design. : RQV400...1000AB1231L
 Governer no. : 0 420 212 206

Customer-spec. information
 Customer : LIEBHERR

Engine : D906T

1st version kW : 170.0
 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
 & c-rod trav max. : 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed 1/mi: 1000
 Contr.-rod trav.mm: 13.30...13.40
 Del.quantity cm3/ : 13.6...13.8
 100H.: (13.4...14.0)

Dispersion cm3/ : 0.3
 100H.: (0.6)
 2nd speed 1/min: 400.0
 Contr.-rod trav. m: 6.8...7.0
 Del.quantity cm3/ : 1.0...1.6
 100H.: (0.7...1.8)
 Dispersion cm3/ : 0.3
 100H.: (0.5)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 440
 Sleeve travel mm: 2.10...2.30
 2nd speed 1/min: 500
 Sleeve travel mm: 3.00...3.50
 3rd speed 1/min: 585
 Sleeve travel mm: 3.50...4.00
 4th speed 1/min: 1045
 Sleeve travel mm: 8.10...8.20
 5th speed 1/min: 1135
 Sleeve travel mm: 9.40...9.70

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1065
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 1000
 Charge press. hPa : 700

Del. quantity cm³/ : 136.5...138.5
1000H.: (134.5...140.5)

Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:
1st c-rod trav.mm : 12.30
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 12...19

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 400
C-rod trav.mm : 6.80...7.00
C-rod trav.mm : 2.00

CONSTANT REGULATION

Speed 1/min : 425...530

TORQUE CONTROL

Dimension a mm : -
Torque-control curve - 1st version
1st speed 1/min : 1000
C-rod trav.mm : 13.30...13.40
2nd speed 1/min : 500
C-rod trav.mm : 13.30...13.50

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.10...12.30
2nd pressure hPa : 435
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 410
C-rod trav.mm : 12.40...12.60

SWITCH-OVER POINT

Speed 1/min : 320 (340)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ : 100.0...102.0
1000H.: (98.0...104.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.30
Speed 1/min : 1040...1050.

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 115.0...125.0
1000H.: (112.0...128.0)
Contr.-rod trav.mm: 19.50...21.00

LOW IDLE

Speed 1/min : 400
Contr.-rod trav.mm: 6.80...7.00
Del. quantity cm³/ : 10.0...16.0
1000H.: (7.5...18.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 V 20
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 400 846 564

Injection pump
Pump designation : PES6A90D410RS2596
EP type number : 0 410 896 073
Governor
Governor design. : RQV300...1300AB1066-
5L
Governor no. : 0 420 212 212

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM352A

1st version kW : 122.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 12.20...12.30

Del.quantity cm³/ : 7.6...7.7

100H.: (7.4...7.9)

Dispersion cm³/ : 0.3

100H.: (0.5)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.7...8.9

Del.quantity cm³/ : 1.0...1.6

100H.: (0.8...1.8)

Dispersion cm³/ : 0.2

100H.: (-)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.80...1.30

2nd speed 1/min: 500

Sleeve travel mm: 2.30...2.80

3rd speed 1/min: 750

Sleeve travel mm: 4.10...4.30

4th speed 1/min: 1500

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1500

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm³/ : 76.5...77.5

1000H.: (74.5...79.5)

Dispersion cm³/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...64

Testing:

1st c-rod trav.mm : 11.20
Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00
Speed 1/min : 1510...1540

4th speed 1/min : 1650
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 19...27

Testing:

Speed 1/min : 100
C-rod trav.mm min : 10.30

Speed 1/min : 300
C-rod trav.mm : 8.70...8.90

C-rod trav.mm : 2.00
Speed 1/min : 570...630

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version

1st speed 1/min : 1300
C-rod trav.mm : 12.20...12.30

2nd speed 1/min : 800
C-rod trav.mm : 13.30...13.40

3rd speed 1/min : 1075
C-rod trav.mm : 13.00...13.20

4th speed 1/min : 1175
C-rod trav.mm : 12.60...12.90

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.90...12.00

2nd pressure hPa : 400
C-rod trav.mm : 12.80...12.90

3rd pressure hPa : 300
C-rod trav.mm : 12.20...12.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 800
Del. quantity cm³/ 1000H. : 78.5...81.5
1000H. : (76.0...84.0)

Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ 1000H. : 52.5...55.5
1000H. : (50.0...58.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.20
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ 1000H. : 73.0...83.0
1000H. : (70.0...86.0)
Contr.-rod trav.mm: 15.40...15.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 3,1 B 1

Edition : 02.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 400 863 008

Injection pump

Pump designation : PES3A90D320/3RS2658

EP type number : 0 410 893 004

Governor

Governor design. : RSV325...1500A2C505-
2R

Governor no. : 0 420 233 196

Customer-spec. information

Customer : MWM

Engine : D226P-3

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.95...3.05
: (2.90...3.10)

Contr.-rod trav.mm : 9.00...12.00

Cam sequence : 1- 2- 3

SD ang. spacing⁰CS: 0-120-240
Tolerance + -⁸ : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...0.00
& c-rod trav max. : 21.00
Difference⁰ CS : 3.50...4.50

BASIC SETTING

1st speed 1/min: 1500

Contr.-rod trav.mm: 11.20...11.30

Del.quantity cm³/ : 8.9...9.0

100H.: (8.7...9.2)

Dispersion cm³/ : 0.3

100H.: (0.5)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 10.0...10.2

Del.quantity cm³/ : 4.8...5.4

100H.: (4.6...5.6)

Dispersion cm³/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 2.50

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1500

Del.quantity cm³/ : 89.5...90.5

1000H.: (87.5...92.5)

Dispersion cm³/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 49...57

Testing:

1st c-rod trav.mm : 10.20

Speed 1/min : 1540...1550

2nd c-rod trav.mm : 4.00

Speed 1/min : 1590...1620
3rd c-rod trav.mm : 4.00
Speed 1/min : 1595...1625
4th speed 1/min : 1765
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 11...19

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 9.6

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 10.00...10.20

C-rod trav.mm : 2.00

Speed 1/min : 475...535

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1500

C-rod trav.mm : 11.20...11.30

2nd speed 1/min : 500

C-rod trav.mm : 11.20...11.40

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.20

Speed 1/min : 1540...1550

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 115.0

1000H.: (112.0)

Contr.-rod trav.mm: 16.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 4,1 C 7

Edition : 02.11.87

Superceeded : 12.9.86

Calibrating oil : ISO-4113

Combination no. : 0 400 864 058

Injection pump

Pump designation : PES4A80D410/3RS2523

EP type number : 0 410 884 043

Governor

Governor design. : RSV325...1250A8C540-
1L

Governor no. : 0 420 232 355

Customer-spec. information

Customer : KHD

Engine : F4L913

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270

Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1250

Contr.-rod trav.mm: 11.60...11.70

Del.quantity cm3/ : 6.8...6.9

100H.: (6.7...7.1)

Dispersion cm3/ : 0.2

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 8.1...8.3

Del.quantity cm3/ : 1.0...1.6

100H.: (0.8...1.7)

Dispersion cm3/ : 0.2

100H.: (0.3)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travemm: 0.00...0.70

Governor-spring reload

Notch setting x : 4.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1250

Del.quantity cm3/ : 68.5...69.5

1000H.: (67.0...71.0)

Dispersion cm3/ : 2.50

1000H.: (4.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 53...61

Testing:

1st c-rod trav.mm : 10.60

Speed 1/min : 1290...1300

2nd c-rod trav.mm : 4.00

Speed 1/min : 1320...1350

3rd c-rod trav.mm : 4.00

Speed 1/min : 1355...1385

4th speed 1/min : 1555

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 6.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 545...605

TORQUE CONTROL

Dimension a mm : 0.50

Torque-control curve - 1st version

1st speed 1/min : 1250

C-rod trav.mm : 11.60...11.70

2nd speed 1/min : 500

C-rod trav.mm : 12.10...12.20

3rd speed 1/min : 965

C-rod trav.mm : 11.80...12.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800

Del.quantity cm³/ : 64.5...66.5

1000H.: (62.5...68.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.60

Speed 1/min : 1290...1300

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 125.0...135.0

1000H.: (122.0...138.0)

Contr.-rod trav.mm: 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 A 7

Edition : 02.11.87

Superceeded : 13.5.87

Calibrating oil : ISO-4113

Combination no. : 0 400 866 120

Injection pump

Pump designation : PES6A85D410/3RS2415

EP type number : 0 410 886 915

Governor

Governor design. : RSV325...1150A8C673-
1L

Governer no. : 0 420 232 489

Customer-spec. information

Customer : KHD

Engine : BF6L913

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 6.8...6.9

100H.: (6.6...7.1)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 8.0...8.2

Del.quantity cm3/ : 1.0...1.6

100H.: (0.8...1.8)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 4.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 68.0...69.0

1000H.: (66.0...71.0)

Dispersion cm3/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 46...54

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1215...1245

3rd c-rod trav.mm : 4.00

Speed 1/min : 1225...1255

4th speed 1/min : 1400

c-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 490...550

TORQUE CONTROL

Dimension a mm : 0.70

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 500

C-rod trav.mm : 11.70...11.80

3rd speed 1/min : 990

C-rod trav.mm : 11.30...11.50

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm³/ : 100.0...110.0

1000H.: (97.0...113.0)

Contr.-rod trav.mm: 16.70...17.30

Remarks:

:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : EIC 3,9 C 1

Edition : 02.11.87

Superceded : 28.11.86

Calibrating oil : ISO-4113

Combination no. : 0 400 874 239

Injection pump

Pump designation : PES4A90D320RS2634

EP type number : 0 410 894 026

Governor

Governor design. : RSV300...1050A1C2153
-1R

Governer no. : 0 420 233 193

Customer-spec. information

Customer : EICHER

Engine : EDL4

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 4- 3

SD ang. spacing°CS: 0-90-180-270
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1050

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm³/ : 8.1...8.2

100H.: (7.9...8.4)

Dispersion cm³/ : 0.2

100H.: (0.3)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 10.9...11.1

Del.quantity cm³/ : 4.1...4.6

100H.: (3.9...4.8)

Dispersion cm³/ : 0.2

100H.: (0.3)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm³/ : 81.0...82.0

1000H.: (79.0...84.0)

Dispersion cm³/ : 2.00

1000H.: (3.50)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 46...54

Testing:

1st c-rod trav.mm : 11.60

Speed 1/min : 1090...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1105...1135

3rd c-rod trav.mm : 4.00

Speed 1/min : 1135...1165

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 10.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 300

C-rod trav.mm : 10.90...11.10

C-rod trav.mm : 2.00

Speed 1/min : 410...470

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 12.60...12.70

2nd speed 1/min : 500

C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500

Del.quantity cm³/ : 69.5...71.5

1000H.: (67.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.60

Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 123.0...133.0

1000H.: (120.0...136.0)

Contr.-rod trav.mm: 19.50...21.00

Remarks:

:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 C
 Edition : 02.11.87
 Superceeded : 2.9.87
 Calibrating oil : ISO-4113

Combination no. : 0 400 874 243

Injection pump
 Pump designation : PES4A90D410RS2666-2
 EP type number : 0 410 894 033
 Governor
 Governor design. : RSV350...1200A2C1139
 -2L
 Governer no. : 0 420 232 471

Customer-spec. information
 Customer : DB

Engine : OM364

1st version kW : 50.0
 Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
 : (2.20...2.40)

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270
 Tolerance + - " : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 9.40...9.50

Del.quantity cm3/ : 4.9...5.0

100H.: (4.7...5.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.1...8.7

Del.quantity cm3/ : 1.0...1.2

100H.: (0.8...1.4)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travemm: 0.30...0.70

Governor-spring reload
 Notch setting x : 5.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 49.0...50.0

1000H.: (47.0...52.0)

Dispersion cm3/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 49...57

Testing:

1st c-rod trav.mm : 8.40

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1286...1299

3rd c-rod trav.mm : 4.00

Speed 1/min : 1325...1355

4th speed 1/min : 1530
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I
Control-lever
position degrees: -3
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 8.4

Testing:
Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 8.30...8.50
C-rod trav.mm : 2.00
Speed 1/min : 530...590

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 9.40...9.50
2nd speed 1/min : 800
C-rod trav.mm : 10.50...10.60
3rd speed 1/min : 950
C-rod trav.mm : 10.30...10.50
4th speed 1/min : 1050
C-rod trav.mm : 9.70...10.00

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 800
Del.quantity cm³/ : 45.0...47.0
1000H.: (42.5...49.5)
Speed 1/min : 1000
Del.quantity cm³/ : 48.0...51.0
1000H.: (45.5...53.5)

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 16.20...16.60

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.10...8.70
Del.quantity cm³/ : 10.0...12.0
1000H.: (8.0...14.0)
Dispersion cm³/ : 2.50
1000H.: (4.50)

Remarks:

:

D02

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 D 4

Edition : 12.11.87

Superceeded : 15.5.87

Calibrating oil : ISO-4113

Combination no. : 0 400 876 270

Injection pump

Pump designation : PES6A85D410RS2537

EP type number : 0 410 886 908

Governor

Governor design. : RSV325...1150A8C2020

Governer no. : 0 420 232 345

Customer-spec. information

Customer : KHD

Engine : BF6L913

1st version kW : 106.6

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

Speed 1/min : 1270...1300
4th speed 1/min : 1435
C-rod trav.mm : 0.30...1.40

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

LOWEST RATED SPEED I
Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 6.4

BASIC SETTING

1st speed 1/min: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 7.9...8.1

100H.: (7.7...8.3)

Dispersion cm³/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 6.8...7.0

Del.quantity cm³/ : 0.9...1.5

100H.: (0.7...1.7)

Dispersion cm³/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 500

Del.quantity cm³/ : 79.5...81.5

1000H.: (77.5...83.5)

Dispersion cm³/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

3rd c-rod trav.mm : 4.00

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 325

C-rod trav.mm : 6.80...7.00

C-rod trav.mm : 2.00

Speed 1/min : 590...650

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 960

C-rod trav.mm : 11.70...11.90

3rd speed 1/min : 500

C-rod trav.mm : 12.50...12.60

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.60...10.70

2nd pressure hPa : 350

C-rod trav.mm : 12.10...12.20

3rd pressure hPa : 150

C-rod trav.mm : 11.10...11.40

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500

Speed 1/min : 850

Del.quantity cm³/ : 88.0...91.0

1000H.: (86.0...93.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 60.0...63.0

1000H.: (58.0...65.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 17.40...18.00

Remarks:

:

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 G 12
 Edition : 12.11.87
 Superceded : 12.9.86
 Calibrating oil : ISO-4113

Combination no. : 0 400 876 320

Injection pump
 Pump designation : PES6A85D410RS2591
 EP type number : 0 410 886 903
 Governor
 Governor design. : RSV325...1150A8C2020
 Governor no. : 0 420 232 345

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kW : 117.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 12.30...12.40

Del.quantity cm³/ : 8.4...8.5

100H.: (8.2...8.7)

Dispersion cm³/ : 0.3

100H.: (0.4)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm³/ : 0.9...1.5

100H.: (0.7...1.7)

Dispersion cm³/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Charge press. hPa : 700

Del.quantity cm³/ : 84.0...85.0

1000H.: (82.0...87.0)

Dispersion cm³/ : 3.00

1000H.: (4.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 55...63

Testing:

1st c-rod trav.mm : 11.30

Speed 1/min : 1240...1250

2nd c-rod trav.mm : 4.00

Speed 1/min : 1295...1325

3rd c-rod trav.mm : 4.00

Speed 1/min : 1350...1380

4th speed 1/min : 1515
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 7.5

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 325
C-rod trav.mm : 7.90...8.10
C-rod trav.mm : 2.00
Speed 1/min : 640...700

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 12.30...12.40
2nd speed 1/min : 500
C-rod trav.mm : 13.40...13.50
3rd speed 1/min : 925
C-rod trav.mm : 12.80...13.00

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.30...12.40
2nd pressure hPa : 280
C-rod trav.mm : 13.10...13.20
3rd pressure hPa : 175
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 650
Del.quantity cm³/ 1000H.: 79.0...81.0
1000H.: (76.5...83.5)
Charge press. hPa : 700
Speed 1/min : 925
Del.quantity cm³/ 1000H.: 85.0...87.0
1000H.: (82.5...89.5)
Charge press. hPa : -

Speed 1/min : 500
Del.quantity cm³/ 1000H.: 67.0...68.0
1000H.: (65.0...70.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 11.30
Speed 1/min : 1240...1250

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 110.0...120.0
1000H.: (107.0...123.0)
Contr.-rod trav.mm: 17.30...17.70

Remarks:
: DX 7.10

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

APPLICATION
Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6.0 C 4

Edition : 12.11.87

Superceeded : 28.11.86

Calibrating oil : ISO-4113

Combination no. : 0 400 876 334

Injection pump

Pump designation : PES6A90D410RS2710-1

EP type number : 0 410 896 084

Governor

Governor design. : RSV350...750AOC2006-
3L

Governor no. : 0 420 232 454

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 54.0

Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.20...12.30

Del.quantity cm3/ : 6.4...6.5

100H.: (6.2...6.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.2...8.4

Del.quantity cm3/ : 0.6...1.2

100H.: (0.4...1.4)

Dispersion cm3/ : 0.2

100H.: (0.4)

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 64.0...65.0

1000H.: (62.0...67.0)

Dispersion cm3/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 28...36

Testing:

1st c-rod trav.mm : 11.20

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 780...793

4th speed 1/min : 900

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 8.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 8.20...8.40
C-rod trav.mm : 2.00
Speed 1/min : 380...420

SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 78.0...88.0
1000H.: (75.0...91.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 1 0 1
 Edition : 02.11.87
 Superceeded : 22.5.87
 Calibrating oil : ISO-4113

Combination no. : 0 400 876 344

Injection pump
 Pump designation : PES6A95D410RS2625
 EP type number : 0 410 896 926
 Governor
 Governor design. : RSV325...1250A2C1159
 Governor no. : 0 420 232 490

Customer-spec. information

Customer : KHD

Engine : BF6L913C

1st version kW : 130.0
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing °CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1250

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 8.9...9.0

100H.: (8.7...9.2)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm3/ : 1.0...1.6

100H.: (0.7...1.8)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
 Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1250

Charge press. hPa : 900

Del.quantity cm3/ : 89.0...90.0

1000H.: (87.0...92.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 10.10

Speed 1/min : 1290...1300

2nd c-rod trav.mm : 4.00

Speed 1/min : 1320...1350

3rd c-rod trav.mm : 4.00

Speed 1/min : 1375...1405
4th speed 1/min : 1540
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 575...635

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1250
C-rod trav.mm : 11.10...11.20
2nd speed 1/min : 500
C-rod trav.mm : 11.10...11.30

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.20...10.30
2nd pressure hPa : 400
C-rod trav.mm : 10.90...11.00
3rd pressure hPa : 330
C-rod trav.mm : 10.50...10.70

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 54.0...56.0
1000H.: (52.0...58.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.10
Speed 1/min : 1290...1300

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 17.10...17.30

Remarks:

APPLICATION
Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H11

Edition : 06.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 0 400 876 347

Injection pump

Pump designation : PES6A100D410RS2676

EP type number : 9 410 230 023

Governor

Governor design. : RSV600...1100A2C2161
-SL

Governer no. : 0 420 232 495

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466AZ-02

1st version kW : 130.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.10...10.20

Del.quantity cm³/ : 11.1...11.3

100H.: (10.9...11.5)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 4.4...4.6

Del.quantity cm³/ : 1.1...1.5

100H.: (0.8...1.7)

Dispersion cm³/ : 0.7

100H.: (0.9)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del.quantity cm³/ : 111.0...113.0
1000H.: (109.0...115.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1205
4th speed 1/min : 1250
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 600
Contr.-rod trav.mm: 4.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 600
C-rod trav.mm : 3.90...4.10
C-rod trav.mm : 2.00
Speed 1/min : 690...750

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.10...10.20
2nd speed 1/min : 950
C-rod trav.mm : 10.80...11.00

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 93
Contr.-rod trav.mm: 9.00...9.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.30...8.50
2nd pressure hPa : 146
C-rod trav.mm : 9.80...10.20
3rd pressure hPa : 500
C-rod trav.mm : 10.80...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 500
Speed 1/min : 950
Del.quantity cm3/ 1000H.: 119.0...122.0
1000H.: (116.5...124.5)
Speed 1/min : 750
Dispersion cm3/ : 4.00
1000H.: (4.00)
Speed 1/min : 500
Del.quantity cm3/ : -
1000H.: (66.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.10
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm3/ : 190.0...210.0
1000H.: (185.0...215.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 600
Contr.-rod trav.mm: 4.40...4.60
Del.quantity cm3/ : 11.0...15.0
1000H.: (8.5...17.5)
Dispersion cm3/ : 7.00
1000H.: (9.00)

Remarks:

: JOHN DEERE
: #RE32396

Setting without torque-control spring retainer with 1 mm control-rod travel less. Raising of full-load delivery with torque-control spring retainer to 10.1 mm control-rod travel.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 B

Edition : 06.11.87

Superceeded : 11.85

Calibrating oil : ISO-4113

Combination no. : 0 401 276 049

Injection pump

Pump designation : PES6A100D410RS3034

EP type number : 0 411 206 016

Governor

Governor design. : RSV600...1100A2C2080

L

Governer no. : 9 420 234 159

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466 A

1st version kW : 152.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.95...2.05
: (1.90...2.10)Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm³/ : 12.9...13.1

100H.: (12.7...13.3)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 4.5...4.7

Del.quantity cm³/ : 1.3...1.7

100H.: (1.1...1.8)

Dispersion cm³/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm³/ : 129.0...131.0

1000H.: (127.0...133.0)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 33...41

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1225

4th speed 1/min : 1250

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 15...24

Setting point w/out aux. spring

Speed 1/min : 600

Contr.-rod trav.mm: 4.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 600

C-rod trav.mm : 4.00...4.20

C-rod trav.mm : 2.00

Speed 1/min : 635...695

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 8.60...8.70

Measurement

Speed 1/min : 500

1st pressure hPa : 333

C-rod trav.mm : 11.55...11.65

2nd pressure hPa : 233

C-rod trav.mm : 10.75...11.15

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : -

1000H.: (65.0...75.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.70

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 170.0...190.0

1000H.: (165.0...195.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1200

Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 600

Contr.-rod trav.mm: 4.50...4.70

Del.quantity cm³/ : 13.0...17.0

1000H.: (11.5...18.5)

Dispersion cm³/ : 4.00

1000H.: (7.50)

Remarks:

:

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SSC 38,1 A1

Edition : 06.11.87

Superceeded : 9.10.87

Calibrating oil : ISO-4113

Combination no. : 0 401 830 712

Injection pump

Pump designation : PE12P130A520/6LS3090
-3

EP type number : 0 411 830 706

Governor

Governor design. : RQV300...750PA874

Governer no. : 0 421 813 663

Customer-spec. information

Customer : SSCM

Engine : VD 25-V 12

1st version kW : 632.0

Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Cam sequence : 1- 8- 5- 10- 3- 7-
6- 11- 2- 9- 4- 12SD ang. spacing°CS: 0-37.5-60-97.5-120-
157.5-180-217.5-240-SD ang. spacing°CS: 277.5-300-337.5
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 13.80...13.90

Del.quantity cm3/ : 34.8...35.1

100H.: (34.4...35.4)

Dispersion cm3/ : 0.6

100H.: (1.0)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.3

Del.quantity cm3/ : 1.7...2.3

100H.: (1.3...2.7)

Dispersion cm3/ : 1.0

100H.: (1.4)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 600

Sleeve travel mm: 5.10...5.50

3rd speed 1/min: 750

Sleeve travel mm: 7.40...7.80

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 780

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Del.quantity cm3/ : 348.0...351.0

1000H.: (344.5...354.5)

Dispersion cm³/ : 6.00
1000H.: (10.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 62...70

Testing:

1st c-rod trav.mm : 12.80
Speed 1/min : 790...800
2nd c-rod trav.mm : 4.00
Speed 1/min : 850...880
4th speed 1/min : 950
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 300
C-rod trav.mm : 5.90...6.30

CONSTANT REGULATION

Speed 1/min : 330...440

SWITCH-OVER POINT

Speed 1/min : 250 (270)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.80
Speed 1/min : 790...800

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.90...6.30
Del.quantity cm³/ : 17.0...23.0
1000H.: (13.0...27.0)
Dispersion cm³/ : 10.00
1000H.: (14.00)

Remarks:

:

APPLICATION
Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 9,8 B 4
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 846 497

Injection pump
Pump designation : PE6P120A320RS438-1
EP type number : 0 411 826 133
Governor
Governor design. : RQV275...1200PA648-2
Governor no. : 0 421 813 490

Customer-spec. information
Customer : RVI

Engine : MIDS062030

1st version kW : 150.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1200

Del.quantity cm³/ : 13.3...13.5

100H.: (13.0...13.8)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 275.0

Contr.-rod trav. m: 5.1...5.3

Del.quantity cm³/ : 1.5...2.1

100H.: (1.2...2.4)

Dispersion cm³/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 275

Sleeve travel mm: 1.20...1.40

2nd speed 1/min: 450

Sleeve travel mm: 3.30...4.00

3rd speed 1/min: 850

Sleeve travel mm: 5.90...6.20

4th speed 1/min: 1200

Sleeve travel mm: 8.20...8.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1230

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm³/ : 133.0...135.0

1000H.: (130.0...138.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Setting point:

Speed 1/min : 1230

Contr.-rod trav.mm: 16.5

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1255...1265

2nd c-rod trav.mm : 3.90

Speed 1/min : 1355...1385

4th speed 1/min : 1500

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16
Setting point w/out aux. spring
Speed 1/min : 275
Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 275

C-rod trav.mm : 4.90...5.10

CONSTANT REGULATION

Speed 1/min : 275...360

SWITCH-OVER POINT

Speed 1/min : 195 (215)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm³/ : 116.0...122.0

1000H.: (113.0...125.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.20

Speed 1/min : 1255...1265

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 105.0...125.0

1000H.: (101.0...129.0)

LOW IDLE

Speed 1/min : 275
Contr.-rod trav.mm: 4.90...5.10

Remarks:

:

Start-of-delivery mark at the "INJ"
marking

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10.0 S

Edition : 06.11.87

Superceeded : 12.6.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 529

Injection pump

Pump designation : PE6P120A320RS3186

EP type number : 0 411 826 756

Governor

Governor design. : RQV250..1025PA657-13

Governor no. : 0 421 813 592

Customer-spec. information

Customer : VOLVO

Engine : TD102F

1st version kW : 220.0

Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 2.60...2.70
	: (2.55...2.75)
Contr.-rod trav.mm:	9.00...12.00
Cam sequence	: 1- 5- 3- 6- 2- 4

SD ang. spacing°CS:	0-60-120-180-240-300
Tolerance + - "	: 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm³/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.9...4.1

Del.quantity cm³/ : 1.7...2.2

100H.: (1.4...2.4)

Dispersion cm³/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 430

Sleeve travel mm: 3.50...3.80

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 900

Sleeve travel mm: 6.40...6.60

5th speed 1/min: 1080

Sleeve travel mm: 8.30...8.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1080

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1000

Del.quantity cm³/ : 197.0...199.0
1000H.: (194.0...202.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 10.40
Speed 1/min : 1055...1065
2nd c-rod trav.mm : 4.00
Speed 1/min : 1110...1140
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 4...12

Testing:
Speed 1/min : 100
C-rod trav.mm min : 5.40
Speed 1/min : 250
C-rod trav.mm : 3.90...4.10

CONSTANT REGULATION
Speed 1/min : 250...350

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.40...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...9.00
2nd pressure hPa : 60
C-rod trav.mm : 9.20...9.30
3rd pressure hPa : 400
C-rod trav.mm : 11.10...11.30

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm³/ : 143.0...145.0
1000H.: (140.0...148.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.40
Speed 1/min : 1055...1065

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.90...4.10
Del.quantity cm³/ : 17.0...22.0
1000H.: (14.5...24.5)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 7,1 A 3

Edition : 02.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 401 846 534

Injection pump

Pump designation : PE6P110A320RS483-4

EP type number : 0 411 816 172

Governor

Governor design. : RQV250...1200PA499-5

Governor no. : 0 421 813 577

Customer-spec. information

Customer : VOLVO

Engine : TD71FD

1st version kW : 158.0

Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm3/ : 12.0...12.2

100H.: (11.7...12.5)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 1.6...2.0

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 380

Sleeve travel mm: 2.30...2.60

3rd speed 1/min: 500

Sleeve travel mm: 2.90...3.30

4th speed 1/min: 1260

Sleeve travel mm: 7.70...7.90

5th speed 1/min: 1400

Sleeve travel mm: 9.00...9.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1330

Contr.-rod trav.mmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 120.0...122.0

1000H.: (117.0...125.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 54...62

Testing:

1st c-rod trav.mm : 10.80
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1390...1420
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.80
Speed 1/min : 250
C-rod trav.mm : 5.30...5.50

CONSTANT REGULATION

Speed 1/min : 250...480

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.20...10.30
2nd pressure hPa : 470
C-rod trav.mm : 11.60...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm³/ : 85.0...88.0
1000H.: (82.0...91.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 170.0...200.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,2 A

Edition : 02.11.87

Superceeded : 12.6.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 827

Injection pump

Pump designation : PE6P120A320RS3178

EP type number : 0 411 826 752

Governor

Governor design. : RQV250...950PA657-11

Governer no. : 0 421 813 568

Customer-spec. information

Customer : VOLVO

Engine : TD122F

1st version kW : 257,0

Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70

: (3.55...3.75)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 22.9...23.1

100H.: (22.6...23.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250,0

Contr.-rod trav. m: 4.6...4.8

Del.quantity cm3/ : 1.7...2.2

100H.: (1.4...2.5)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 450

Sleeve travel mm: 3.60...4.20

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 985

Sleeve travel mm: 8.20...8.40

5th speed 1/min: 1060

Sleeve travel mm: 9.60...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1000

Cont.-rod trav.mmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm³/ : 229.0...231.0
1000H.: (226.0...234.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:
1st c-rod trav.mm : 12.00
Speed 1/min : 980...990
2nd c-rod trav.mm : 4.00
Speed 1/min : 1060...1090
4th speed 1/min : 1200
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 6.20
Speed 1/min : 250
C-rod trav.mm : 4.60...4.80

CONSTANT REGULATION
Speed 1/min : 250...380

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.80...10.00
2nd pressure hPa : 100
C-rod trav.mm : 10.20...10.30
3rd pressure hPa : 640
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press, hPa : -
Speed 1/min : 700
Del.quantity cm³/ : 163.0...165.0
1000H.: (160.0...168.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.00
Speed 1/min : 980...990

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 220.0...260.0
1000H.: (216.0...264.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 4.60...4.80
Del.quantity cm³/ : 17.5...22.5
1000H.: (14.5...25.5)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 S2

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 401 846 836

Injection pump

Pump designation : PE6P120A320RS3186-1

EP type number : 0 411 826 774

Governor

Governor design. : RQV250..1100PA657-14

Governor no. : 0 421 813 682

Customer-spec. information

Customer : VOLVO

Engine : TD102FDQ

1st version kW : 232.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 2.60...2.70
	: (2.55...2.75)
Contr.-rod trav.mm:	9.00...12.00
Cam sequence	: 1-5-3-6-2-4

SD ang. spacing°CS:	0-60-120-180-240-300
Tolerance + -	: 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm³/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.9...4.1

Del.quantity cm³/ : 1.7...2.2

100H.: (1.4...2.4)

Dispersion cm³/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.80

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 1135

Sleeve travel mm: 7.70...7.90

5th speed 1/min: 1210

Sleeve travel mm: 8.90...9.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1170

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1000

Del. quantity cm³/ : 197.0...199.0
1000H.: (194.0...202.0)

Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.40
Speed 1/min : 1130...1140
2nd c-rod trav.mm : 4.00
Speed 1/min : 1185...1215
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 4...12

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.40
Speed 1/min : 250
C-rod trav.mm : 3.90...4.10

CONSTANT REGULATION

Speed 1/min : 250...360

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.60...8.80
2nd pressure hPa : 80
C-rod trav.mm : 8.90...9.00
3rd pressure hPa : 460
C-rod trav.mm : 11.00...11.20

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press, hPa : -
Speed 1/min : 700
Del. quantity cm³/ : 143.0...155.0
1000H.: (140.0...148.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.40
Speed 1/min : 1130...1140

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.90...4.10
Del. quantity cm³/ : 17.0...22.0
1000H.: (14.5...24.5)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ENA 11.9 E
 Edition : 02.11.87
 Superceeded : 9.10.87
 Calibrating oil : ISO-4113

Combination no. : 0 401 846 861

Injection pump
 Pump designation : PE6P120A320RS3176-1
 EP type number : 0 411 826 767
 Governor
 Governor design. : RQV250...1050PA808
 Governer no. : 0 421 813 553

Customer-spec. information

Customer : ENASA

Engine : 96 R1 AX

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1030

Contr.-rod trav.mm: 13.40...13.50

Del.quantity cm3/ : 24.8...25.0

100H.: (24.5...25.3)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.8...4.0

Del.quantity cm3/ : 2.5...3.1

100H.: (2.2...3.4)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 1.70...2.30

3rd speed 1/min: 700

Sleeve travel mm: 4.50...5.10

4th speed 1/min: 1095

Sleeve travel mm: 8.20...8.40

5th speed 1/min: 1195

Sleeve travel mm: 9.40...9.80

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1110

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1030

Charge press. hPa : 900

Del.quantity cm3/ : 248.0...250.0

1000H.: (245.0...253.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Testing:

1st c-rod trav.mm : 12.40
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1180...1210
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.50
Speed 1/min : 250
C-rod trav.mm : 3.80...4.00

CONSTANT REGULATION

Speed 1/min : 250...350

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.80...10.20
2nd pressure hPa : 550
C-rod trav.mm : 12.60...12.70
3rd pressure hPa : 280
C-rod trav.mm : 10.90...11.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900
Speed 1/min : 650
Del.quantity cm³/ 1000H.: 247.0...253.0
1000H.: (244.0...256.0)

Charge press. hPa : -

Speed 1/min : 500
Del.quantity cm³/ 1000H.: 158.0...160.0
1000H.: (155.0...163.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.40
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 160.0...190.0
1000H.: (156.0...194.0)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 10.0 F

Edition : 02.11.87

Superceeded : 10.85

Calibrating oil : ISO-4113

Combination no. : 0 401 876 738

Injection pump

Pump designation : PE6P110A320RS3132

EP type number : 0 411 816 742

Governor

Governor design. : RSV200...1100P1/421-

1

Governer no. : 0 421 833 154

Customer-spec. information

Customer : VOLVO-PENTA

Engine : TID100K

1st version kW : 225.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing °CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm³/ : 17.6...17.8

100H.: (17.3...18.1)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 200.0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm³/ : 1.7...2.1

100H.: (1.4...2.3)

Dispersion cm³/ : 0.3

100H.: (0.6)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 4.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm³/ : 176.0...178.0

1000H.: (173.0...181.0)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 53...61

Testing:

1st c-rod trav.mm : 12.00

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1175...1205

4th speed 1/min : 1340
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever

position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 200
Contr.-rod trav.mm: 3.3
Speed 1/min : 200
C-rod trav.mm : 3.20...3.40
C-rod trav.mm : 2.00
Speed 1/min : 220...280

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 12.00
Speed 1/min : 1140...1150

LOW IDLE

Speed 1/min : 200
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm³/ : 17.0...21.0
1000H.: (14.5...23.5)
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12.1 E1

Edition : 06.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 0 401 876 741

Injection pump

Pump designation : PE6P120A320RS3153

EP type number : 0 411 826 745

Governor

Governor design. : RSV250...1000P1A305-
4

Governer no. : 0 421 833 286

Customer-spec. information

Customer : VOLVO

Engine : TJD 121 K

1st version kW : 253.0

Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70

: (2.55...2.75)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 22.4...22.7

100H.: (22.2...23.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 2.3...2.9

100H.: (2.0...3.2)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 224.5...227.5

1000H.: (222.0...230.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.50

EOS

Speed 1/min : 1020...1030
2nd c-rod trav.mm : 4.00
Speed 1/min : 1070...1100
4th speed 1/min : 1240
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 5.0
Speed 1/min : 250
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 310...370

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 950
C-rod trav.mm : 11.40...11.70
2nd speed 1/min : 450
C-rod trav.mm : 11.40...11.70
3rd speed 1/min : 250
C-rod trav.mm : 12.70...13.30

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.50
Speed 1/min : 1020...1030

STARTING FUEL DELIVERY

Speed 1/min : 100

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 5

Edition : 02.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1150POA823-
S

Governor no. : 0 421 833 166

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 206,0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values

Insp. values in parentheses

Set constant delivery quant.

per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.80...9.90

Del.quantity cm3/ : 14.4...14.6

100H.: (14.1...14.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650,0

Contr.-rod trav. m: 3.4...3.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 144.0...146.0

1000H.: (141.0...149.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:
1st c-rod trav.mm : 8.80
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6

Remarks:

:

Testing:
Speed 1/min : 100
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 9.80...9.90
2nd speed 1/min : 950
C-rod trav.mm : 10.50...10.60
3rd speed 1/min : 1050
C-rod trav.mm : 10.10...10.20

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 950
Del.quantity cm³/ : 162.0...166.0
1000H.: (159.0...169.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 8.80
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11.9 G7

Edition : 06.11.87

Superceeded : 18.8.87

Calibrating oil : ISO-4113

Combination no. : 0 402 036 066

Injection pump

Pump designation : PES6P110A720/3LS477-
2

EP type number : 0 412 016 071

Governor

Governor design. : RQ250/1100PA845

Governor no. : 0 421 801 380

Cust. part no. : MAN-NR.2-7821

Customer-spec. information

Customer : MAN

Engine : D2866 F

1st version kW : 177.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm	: 3.50...3.60
	: (3.45...3.65)
Contr.-rod trav.mm	: 9.00...12.00
Cam sequence	: 6- 2- 4- 1- 5- 3

SD ang. spacing°CS	: 0-60-120-180-240-300
Tolerance + -	: 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 12.3...12.6

100H.: (12.0...12.8)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.0...6.2

Del.quantity cm3/ : 1.5...2.0

100H.: (1.2...2.2)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm3/ : 123.0...126.0

1000H.: (120.5...128.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1230...1260
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 6.1

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 250
C-rod trav.mm : 6.00...6.20
C-rod trav.mm : 2.00
Speed 1/min : 320...360

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 800
C-rod trav.mm : 12.20...12.30
2nd speed 1/min : 1100
C-rod trav.mm : 12.10...12.30

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100
Del.quantity cm³/ : 132.0...138.0
1000H.: (129.0...141.0)
Speed 1/min : 500
Del.quantity cm³/ : 117.0...123.0
1000H.: (114.0...126.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.70
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 110.0...130.0
1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.00...6.20

Del.quantity cm³/ : 15.0...20.0
1000H.: (12.5...22.5)
Dispersion cm³/ : 4.50
1000H.: (7.50)

Remarks:

: MAN-NR. 2-7821

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11_9A27
Edition : 06.11.87
Superceeded : 9.3.87
Calibrating oil : ISO-4113

Combination no. : 0 402 036 068

Injection pump
Pump designation : PES6P120A720/3LS470-
2

EP type number : 0 412 026 050
Governor

Governor design. : RQ300/1100PA658-22
Governor no. : 0 421 801 389

Cust. part no. : MAN-NR.2-7820

Customer-spec. information

Customer : MAN

Engine : D2866TOH

1st version kW : 213.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/min: 750

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm³/ : 19.1...19.3

100H.: (18.8...19.6)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.7...4.9

Del.quantity cm³/ : 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 650

Cont.-rod travlmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Charge press. hPa : 1000

Del.quantity cm³/ : 191.0...193.0

1000H.: (188.0...196.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.30
Speed 1/min : 1145...1160
2nd c-rod trav.mm : 4.00
Speed 1/min : 1180...1210
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 4.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.30
Speed 1/min : 300
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 340...380

TORQUE CONTROL

Dimension a mm : 0.30
Torque-control curve - 1st version
1st speed 1/min : 750
C-rod trav.mm : 11.10...11.20
2nd speed 1/min : 1100
C-rod trav.mm : 10.30...10.40
3rd speed 1/min : 980
C-rod trav.mm : 10.80...11.00
4th speed 1/min : 1025
C-rod trav.mm : 10.40...10.70

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1000

Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 8.80...8.90

2nd pressure hPa : 240

C-rod trav.mm : 9.10...9.20

3rd pressure hPa : 520

C-rod trav.mm : 10.00...10.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000
Speed 1/min : 1100
Del.quantity cm³/ : 193.0...197.0
1000H.: (190.0...200.0)

Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm³/ : 184.0...190.0
1000H.: (181.0...193.0)

Charge press. hPa : 520
Speed 1/min : 500
Del.quantity cm³/ : 168.0...180.0
1000H.: (165.0...183.0)

Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 128.0...130.0
1000H.: (125.0...133.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.30
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 4.70...4.90
Del.quantity cm³/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

: MAN-NR. 2-7820

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11 9A29
 Edition : 06.11.87
 Superceeded : 26.6.87
 Calibrating oil : ISO-4113

Combination no. : 0 402 036 070

Injection pump
 Pump designation : PES6P120A720/3LS470-
 3
 EP type number : 0 412 026 051
 Governor
 Governor design. : RQV300...1100PA707-2
 Governor no. : 0 421 813 638

Customer-spec. information
 Customer : MAN

Engine : D2866LUL/290

1st version kW : 213.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm3/ : 18.3...18.5

100H.: (18.0...18.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.60...1.80

2nd speed 1/min: 475

Sleeve travel mm: 3.10...3.50

3rd speed 1/min: 850

Sleeve travel mm: 5.50...5.90

4th speed 1/min: 1100

Sleeve travel mm: 7.40...7.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Charge press. hPa : 1000

Del.quantity cm3/ : 183.0...185.0

1000H.: (180.0...188.0)

Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 48...56

Testing:
1st c-rod trav.mm : 9.60
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1225...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 15...23

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 300
C-rod trav.mm : 5.40...5.60

CONSTANT REGULATION

Speed 1/min : 310...410

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...8.90
2nd pressure hPa : 210
C-rod trav.mm : 9.10...9.20
3rd pressure hPa : 375
C-rod trav.mm : 9.90...10.20

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000
Speed 1/min : 1100

Del.quantity cm³/ : 192.0...198.0
1000H.: (189.0...201.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm³/ : 172.0...178.0
1000H.: (169.0...181.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 119.0...121.0
1000H.: (116.0...124.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.60
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.40...5.60
Del.quantity cm³/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

| BOSCH INJ. PUMP TEST SPECIFICATIONS

| Note inst. in remarks column

| Test sheet : MAN 11.9A30

| Edition : 06.11.87

| Superceeded : -

| Calibrating oil : ISO-4113

| Combination no. : 0 402 036 071

| Injection pump

| Pump designation : PES6P120A720/3LS470-
| 2

| EP type number : 0 412 026 050

| Governor

| Governor design. : RQ300/1100PA813-3

| Governer no. : 0 421 801 422

| Customer-spec. information

| Customer : MAN

| Engine : D2866T0H

| 1st version kW : 213.0

| Speed 1/min: 2200

| TEST BENCH REQUIREMENTS

| Calibrating-oil
| inlet temp. °C : 38...42

| Overflow valve : 1 417 413 025

| Inlet press., bar : 1.50

| Calibrating nozzle-holder
| assembly : 1 688 901 019

| Opening
| pressure, bar : 207...210

| Perforated-plate
| diameter mm : 0,8

| Test inj. tubing : 1 680 750 067

| Outside diameter
| x Wall thickness
| x Length mm : 6.00X1.50X1000

| (A) Injection pump setting values
| Insp. values in parentheses
| Set constant delivery quant.
| per values -----

| START OF DELIVERY

| Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/min: 750

Contr.-rod trav.mm: 10.60...10.70

Del. quantity cm³/ : 19.1...19.3

100H.: (18.8...19.6)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.9...5.1

Del. quantity cm³/ : 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 750

Cont.-rod travelmm: 14.70...16.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Charge press. hPa : 1000

Del. quantity cm³/ : 191.0...193.0

1000H.: (188.0...196.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 750

Contr.-rod trav.mm: 15.5

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1145...1160
2nd c-rod trav.mm : 4.00
Speed 1/min : 1180...1210
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.50
Speed 1/min : 300
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 385...425

TORQUE CONTROL

Dimension a mm : 0.30
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.30...10.40
2nd speed 1/min : 750
C-rod trav.mm : 11.20...11.30
3rd speed 1/min : 980
C-rod trav.mm : 10.90...11.10
4th speed 1/min : 1030
C-rod trav.mm : 10.40...10.70

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...8.90
2nd pressure hPa : 240
C-rod trav.mm : 9.10...9.20
3rd pressure hPa : 520
C-rod trav.mm : 10.00...10.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000

Speed 1/min : 1100
Del.quantity cm³/ : 193.0...197.0
1000H.: (190.0...200.0)
Charge press. hPa : 1000
Speed 1/min : 650
Del.quantity cm³/ : 184.0...190.0
1000H.: (181.0...193.0)
Charge press. hPa : 520
Speed 1/min : 500
Del.quantity cm³/ : 168.0...180.0
1000H.: (165.0...183.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 119.0...121.0
1000H.: (116.0...124.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.30
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 225.0...245.0
1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 12.0...18.0
1000H.: (9.0...21.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11_9 G8
Edition : 06.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 036 072

Injection pump
Pump designation : PES6P110A720/3LS477-
EP type number : 0 412 016 071
Governor
Governor design. : RQ250/1100PA845-1
Governor no. : 0 421 801 423

Customer-spec. information

Customer : MAN

Engine : D2566IUH/205

1st version kW : 150.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 10.30...10.40

Del.quantity cm³/ : 9.1...9.4

100H.: (8.8...9.6)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.5...5.7

Del.quantity cm³/ : 1.5...2.0

100H.: (1.2...2.2)

Dispersion cm³/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm³/ : 91.0...94.0

1000H.: (88.5...96.5)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1205...1235

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 5.6

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.10

Speed 1/min : 250

C-rod trav.mm : 5.50...5.70

C-rod trav.mm : 2.00

Speed 1/min : 315...355

TORQUE CONTROL

Dimension a mm : -

Torque-control curve - 1st version

1st speed 1/min : 800

C-rod trav.mm : 10.80...10.90

2nd speed 1/min : 1100

C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100

Del.quantity cm³/ : 103.0...107.0
1000H.: (100.0...110.0)

Speed 1/min : 500

Del.quantity cm³/ : 81.0...85.0
1000H.: (78.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.30

Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 110.0...130.0
1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 5.50...5.70

Del.quantity cm³/ : 15.0...20.0

1000H.: (12.5...22.5)

Dispersion cm³/ : 4.50
1000H.: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 9,8 A 8

Edition : 06.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 0 402 046 332

Injection pump

Pump designation : PES6P120A320RS419-2

EP type number : 0 412 026 048

Governor

Governor design. : RQ275/1050PA844

Governor no. : 0 421 801 379

Customer-spec. information

Customer : RVI

Engine : MIPSO62045B

1st version kW : 176.0

Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 2.80...2.90		4th speed 1/min : 1300
	: (2.75...2.95)		C-rod trav.mm : 0.00...1.00
Contr.-rod trav.mm:	9.00...12.00		LOWEST RATED SPEED I
Cam sequence	: 1- 5- 3- 6- 2- 4		Setting point w/out aux. spring
SD ang. spacing°CS:	0-60-120-180-240-300		Speed 1/min : 275
Tolerance + -	: 0.50 (0.75)		Contr.-rod trav.mm: 5.6
BASIC SETTING			
1st speed	1/min: 1050		Testing:
Contr.-rod trav.mm:	9.20...9.30		Speed 1/min : 200
Del.quantity cm ³ /	: 16.1...13.6		C-rod trav.mm min : 5.50
	100H.: (15.8...13.9)		Speed 1/min : 275
Dispersion	cm ³ / : 0.5		C-rod trav.mm : 3.50...3.70
	100H.: (0.9)		C-rod trav.mm : 2.00
2nd speed	1/min: 275.0		Speed 1/min : 300...340
Contr.-rod trav. m:	4.9...5.1		
Del.quantity cm ³ /	: 1.7...2.3		TORQUE CONTROL
	100H.: (1.4...2.6)		Torque-control curve - 1st version
Dispersion	cm ³ / : 0.8		1st speed 1/min : 1050
	100H.: (1.2)		C-rod trav.mm : 9.70...9.80
SLEEVE POSITION			
Control-lever position			2nd speed 1/min : 700
Degree:	-2		C-rod trav.mm : 9.70...9.90
Speed	1/min: 600		
Cont.-rod travellmm:	19.20...20.80		
FULL-LOAD DELIV. AT FULL-LOAD STOP			
1st version			Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)
Speed	1/min: 1050		
Charge press. hPa	: 700		
Del.quantity cm ³ /	: 161.0...136.0		1st version
	1000H.: (158.0...139.0)		Setting
Dispersion	cm ³ / : 5.00		Speed 1/min : 500
	1000H.: (9.00)		Pressure hPa : 700
HIGHEST RATED SPEED			
1st version			Contr.-rod trav.mm: 9.20...9.300
Setting point:			
Speed	1/min : 600		Measurement
Contr.-rod trav.mm:	20.0		Speed 1/min : 500
Testing:			
1st c-rod trav.mm	: 8.20		1st pressure hPa : -
Speed	1/min : 1110...1120		C-rod trav.mm : 8.20...8.30
2nd c-rod trav.mm	: 4.00		2nd pressure hPa : 260
Speed	1/min : 1170...1200		3rd pressure hPa : 230
			C-rod trav.mm : 8.40...8.60
SWITCH-OVER POINT			
Speed	1/min : 195 (215)		
FUEL-DELIVERY CHARACTERISTICS			
1st version			
Charge press. hPa	: 700		
Speed	1/min : 700		
Del.quantity cm ³ /	: 149.0...155.0		
	1000H.: (146.0...158.0)		
Charge press. hPa	: -		
Speed	1/min : 500		
Del.quantity cm ³ /	: 103.0...105.0		
	1000H.: (100.0...108.0)		

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.20

Speed 1/min : 1110...1120

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ 1000H.: 140.0...160.0
1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 275

Contr.-rod trav.mm: 3.50...3.70

Remarks:

:

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9,6 W

Edition : 06.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 0 402 046 792

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV400...1100PA882

Governer no. : 0 421 813 681

Customer-spec. information

Customer : KHD

Engine : BF6LS13R

1st version KW : 176.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values

Insp. values in parentheses

Set constant delivery quant.

per values -----

START OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 14.1...14.3

100H.: (13.8...14.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 400.0

Contr.-rod trav. m: 5.7...5.9

Del.quantity cm3/ : 1.2...1.8

100H.: (1.0...2.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 400

Sleeve travel mm: 0.80...1.20

2nd speed 1/min: 600

Sleeve travel mm: 2.80...3.60

3rd speed 1/min: 900

Sleeve travel mm: 5.60...6.20

4th speed 1/min: 1140

Sleeve travel mm: 8.20...8.40

5th speed 1/min: 1230

Sleeve travel mm: 9.50...9.90

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 700

Del.quantity cm3/ : 141.0...143.0

1000H.: (138.0...146.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 57...65

Testing:

1st c-rod trav.mm : 11.90
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1220...1250
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.20
Speed 1/min : 400
C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION

Speed 1/min : 400...650

TORQUE CONTROL

Dimension a mm : 0.40
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 650
C-rod trav.mm : 13.30...13.40
3rd speed 1/min : 750
C-rod trav.mm : 13.10...13.30
4th speed 1/min : 950
C-rod trav.mm : 12.90...13.10

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 450
Pressure hPa : 700
Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min : 450

1st pressure hPa : -
C-rod trav.mm : 12.30...12.50
2nd pressure hPa : 400
C-rod trav.mm : 13.10...13.20
3rd pressure hPa : 360
C-rod trav.mm : 12.70...12.90

SWITCH-OVER POINT

Speed 1/min : 320 (340)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 650
Del.quantity cm³/ : 148.0...152.0
1000H.: (145.0...155.0)
Charge press. hPa : -
Speed 1/min : 450
Del.quantity cm³/ : 123.0...125.0
1000H.: (120.0...128.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 170.0...200.0
1000H.: (166.0...204.0)

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

APPLICATION

Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 14.9 F1

Edition : 10.04.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 402 048 046

Injection pump

Pump designation : PES8P120A320RSS507

EP type number : 0 412 028 023

Governor

Governor design. : RQV275...1050PA665-2

Governor no. : 0 421 813 623

Customer-spec. information

Customer : RVI

Engine : MIVR083530

1st version kW : 268.0

Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-8-4-2-7-3-
6-5

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/: 18.2...18.4

100H.: (17.9...18.7)

Dispersion cm3/: 0.5

100H.: (0.9)

2nd speed 1/min: 275.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/: 1.9...2.5

100H.: (1.6...2.8)

Dispersion cm3/: 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 275

Sleeve travel mm: 1.30...1.70

2nd speed 1/min: 400

Sleeve travel mm: 3.00...3.50

3rd speed 1/min: 525

Sleeve travel mm: 4.00...4.40

4th speed 1/min: 650

Sleeve travel mm: 4.90...5.30

5th speed 1/min: 1050

Sleeve travel mm: 7.60...7.80

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1140

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Charge press. hPa : 700

Del. quantity cm³/ : 182.0...184.0
1000H.: (179.0...187.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1105...1115
2nd c-rod trav.mm : 4.00
Speed 1/min : 1195...1225
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:

Speed 1/min : 200
C-rod trav.mm min : 7.40
Speed 1/min : 275
C-rod trav.mm : 5.60...5.80

CONSTANT REGULATION

Speed 1/min : 290...405

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.40...9.60
2nd pressure hPa : 150
C-rod trav.mm : 10.60...10.70
3rd pressure hPa : 110
C-rod trav.mm : 9.80...10.00

SWITCH-OVER POINT

Speed 1/min : 195 (215)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 650
Del. quantity cm³/ : 165.0...171.0
1000H.: (162.0...174.0)
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ : 116.0...118.0
1000H.: (113.0...121.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.00
Speed 1/min : 1105...1115

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 275
Contr.-rod trav.mm: 5.60...5.80
Del. quantity cm³/ : 19.0...25.0
1000H.: (16.0...28.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:
Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

LOWEST RATED SPEED I

Control-lever
position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 425
Contr.-rod trav.mm: 5.4

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 425
C-rod trav.mm : 5.60...6.00
C-rod trav.mm : 2.00
Speed 1/min : 600...660

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.20...10.30
2nd speed 1/min : 750
C-rod trav.mm : 11.40...11.60

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 9.35...9.55

Measurement

Speed 1/min : 500

1st pressure hPa : 200
C-rod trav.mm : 11.00...11.10
2nd pressure hPa : 80
C-rod trav.mm : 9.70...10.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500
Speed 1/min : 750
Del. quantity cm³/ 1000H. : 127.5...130.5
1000H. : (125.0...133.0)
Charge press. hPa : -
Speed 1/min : 750
Dispersion cm³/ 1000H. : 4.00
1000H. : (4.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.20
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ 1000H. : 190.0...210.0
1000H. : (185.0...215.0)
Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version
Speed 1/min : 1190
Contr.-rod trav.mm: 5.70...5.90

LOW IDLE

Speed 1/min : 425
Contr.-rod trav.mm: 5.80...6.00
Del. quantity cm³/ 1000H. : 24.0...28.0
1000H. : (21.5...30.5)
Dispersion cm³/ 1000H. : 7.00
1000H. : (9.00)

Remarks:

: JOHN DEERE # 16418
Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 10,6 D
 Edition : 12.11.87
 Superceeded : 7.86
 Calibrating oil : ISO-4113

Combination no. : 0 402 076 038

Injection pump
 Pump designation : PES6P110A720RS296
 Governor
 Governor design. : RSV400...900PO/440DR

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing °CS: 0-60-120-180-240-300
 Tolerance + - : 0,5 (0,75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 900
 Contr.-rod trav.mm: 11.60...11.70
 Del.quantity cm³/ : 16.0...16.2
 100H.: (-)
 Dispersion cm³/ : 0.4
 100H.: (-)
 2nd speed 1/min: 400
 Contr.-rod trav. m: 6.20...6.40
 Del.quantity cm³/ : 1.9...2.5
 100H.: (-)
 Dispersion cm³/ : 0.4
 100H.: (-)

SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed 1/min: 800
 Cont.-rod travelmm: 0.30...1.00

Governor-spring reload
 Notch setting x : -

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 900
 Charge press. hPa : 800
 Del.quantity cm³/ : 160.0...162.0
 1000H.: (156.0...166.0)
 Dispersion cm³/ : 4.0
 1000H.: (-)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 38...46

Testing:
 1st c-rod trav.mm : 10.60
 Speed 1/min : 950...960
 2nd c-rod trav.mm : 6.20
 Speed 1/min : 985...1015
 3rd c-rod trav.mm : 0.20...1.30
 Speed 1/min : 800
 4th speed 1/min : 1100
 C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I
 Control-lever

position degrees: 21...29
Setting point w/out aux. spring
Speed 1/min : 400
Contr.-rod trav.mm: 5.7

Testing:
Speed 1/min : 100
C-rod trav.mm min : 21.00
Speed 1/min : 400
C-rod trav.mm : 6.10...6.30
C-rod trav.mm : 2.00
Speed 1/min : 470...530

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 900
C-rod trav.mm : 11.55...11.60
2nd speed 1/min : 700
C-rod trav.mm : 12.10...12.30
3rd speed 1/min : 650
C-rod trav.mm : 12.45...12.55
4th speed 1/min : 550
C-rod trav.mm : 12.80

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 550
Pressure hPa : 420
Contr.-rod trav.mm: 11.25...11.35

Measurement
Speed 1/min : 550
1st pressure hPa : 570
C-rod trav.mm : 12.28...12.32

SWITCH-OVER POINT

Speed 1/min : 400...750

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 800
Speed 1/min : 650
Del.quantity cm³/ 1000H.: 177.0...180.0
1000H.: (171.0...186.0)
Dispersion cm³/ 1000H.: -
1000H.: (-)
Charge press. hPa : -
Speed 1/min : 550
Del.quantity cm³/ 1000H.: 135.0...141.0
1000H.: (129.0...147.0)
Dispersion cm³/ 1000H.: -
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.60
Speed 1/min : 950...960

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 190.0...210.0
1000H.: (-)

HIGH IDLE

1st version
Speed 1/min : 1000
Del.quantity cm³/ 1000H.: 47.0...57.0
1000H.: (-)

LOW IDLE

Speed 1/min : 400
Del.quantity cm³/ 1000H.: 19.0...25.0
1000H.: (-)

Remarks:

:
Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,7 E 1

Edition : 02.11.87

Superceeded : 9.10.87

Calibrating oil : ISO-4113

Combination no. : 0 402 076 724

Injection pump

Pump designation : PES6P110A820LS3131-1

EP type number : 0 412 016 717

Governor

Governor design. : RSV350...750POAS36

Governor no. : 0 421 833 279

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM447

1st version kW : 129.0

Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40

: (4.25...4.45)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.70...12.80

Del.quantity cm3/ : 14.5...14.7

100H.: (14.2...14.9)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.9...7.1

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 145.0...147.0

1000H.: (142.5...149.5)

Dispersion cm3/ : 4.00

1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 24...32

Testing:

1st c-rod trav.mm : 11.70

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 775...788

4th speed 1/min : 900

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 350

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 360...400

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.20

Speed 1/min : 740...750

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MTU 39,7 D
 Edition : 4.11.87
 Superceeded : -
 Calibrating oil : ISO-4113

Combination no. : 0 402 430 011

Injection pump
 Pump designation : PE12ZW160/120RS1029/
 11
 EP type number : 0 412 460 002
 Governor
 Governor design. : RQUV750ZWA53R
 Governor no. : 0 422 409 031

Customer-spec. information

Customer : MTU

Engine : 396

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 027

Outside diameter
 x Wall thickness
 x Length mm : 8,00x2,00x1500

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Contr.-rod trav.mm: 12.0
 Cam sequence : 12-9-4-5-8-11-2-3-10
 -7-6-1

SD ang. spacing°CS: 0-15-60-75-120-135-
 180-195-240-255-300-

315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 18.00

Del.quantity cm3/ : 51.3...52.3

100H.: (51.0...52.6)

Dispersion cm3/ : 2.2

100H.: (3.3)

2nd speed 1/min: 600

Contr.-rod trav. m: 9.00

Del.quantity cm3/ : 14.0...16.0

100H.: (13.5...16.5)

Dispersion cm3/ : 1.2

100H.: (1.8)

3rd speed 1/min: 300

Contr.-rod trav.mm: 9.00

Del.quantity cm3/ : 7.2...9.2

100H.: (6.7...9.7)

Dispersion cm3/ : 1.1

100H.: (1.6)

SLEEVE POSITION

Control-lever position
 Degree: 49...50

Speed 1/min: 750

Cont.-rod travelmm: 18.00

HIGHEST RATED SPEED

1st version

Control-lever
 position degrees: 67,5...70,5

Testing:

1st c-rod trav.mm : 18.00

Speed 1/min : 750

2nd c-rod trav.mm : 5.00

Speed 1/min : 780...790

3rd c-rod trav.mm : 0...0.01

Speed 1/min : 792...805

Remarks:

:

Acceleration from start to full load
 with n = 170...250 min.. -1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 D
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 646 844

Injection pump
Pump designation : PE6P120A720RS7017
EP type number : 0 412 626 818
Governor
Governor design. : RQV200...1000PAS39-7
Governor no. : 0 421 813 631

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DSC 11 12

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm³/ : 22.0...22.2

100H.: (21.7...22.5)

Dispersion cm³/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm³/ : 1.8...2.2

100H.: (1.5...2.5)

Dispersion cm³/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.20...1.60

2nd speed 1/min: 350

Sleeve travel mm: 2.40...3.00

3rd speed 1/min: 650

Sleeve travel mm: 4.50...5.10

4th speed 1/min: 1045

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1165

Sleeve travel mm: 10.00...10.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1050

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm³/ : 220.0...222.0

1000H.: (217.0...225.0)

Dispersion cm³/ : 6.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 58...66

Testing:

1st c-rod trav.mm : 13.50

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.80

Speed 1/min : 225

C-rod trav.mm : 5.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 370...430

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 14.50...14.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.40...12.50

2nd pressure hPa : 480

C-rod trav.mm : 14.10...14.20

3rd pressure hPa : 285

C-rod trav.mm : 13.00...13.20

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1000

Del.quantity cm³/ : 210.0...218.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 169.0...173.0

1000H.: (167.0...175.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.50

Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 5.30...5.50

Del.quantity cm³/ : 18.0...22.0

1000H.: (15.0...25.0)

Dispersion cm³/ : 3.00

1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on August 20, 1987.
Dumper

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11.1 C
 Edition : 02.11.87
 Superceded : 20.8.87
 Calibrating oil : ISO-4113

Combination no. : 0 402 646 845

Injection pump
 Pump designation : PE6P120A720RS7139
 EP type number : 0 412 626 819
 Governor
 Governor design. : RQV200...1000PA725-2
 Governor no. : 0 421 813 632

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DSC11 13

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700
 Contr.-rod trav.mm: 15.20...15.30
 Del.quantity cm3/ : 23.6...23.8
 100H.: (23.3...24.1)
 Dispersion cm3/ : 0.6
 100H.: (0.9)

2nd speed 1/min: 225.0
 Contr.-rod trav. m: 5.5...5.7
 Del.quantity cm3/ : 1.8...2.2
 100H.: (1.5...2.5)
 Dispersion cm3/ : 0.3
 100H.: (0.6)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225
 Sleeve travel mm: 1.20...1.60
 2nd speed 1/min: 350
 Sleeve travel mm: 2.40...3.00
 3rd speed 1/min: 650
 Sleeve travel mm: 4.50...5.10
 4th speed 1/min: 1045
 Sleeve travel mm: 8.40...8.60
 5th speed 1/min: 1170
 Sleeve travel mm: 10.10...10.50

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1040
 Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700
 Charge press. hPa : 900
 Del.quantity cm3/ : 236.0...238.0
 1000H.: (233.0...241.0)
 Dispersion cm3/ : 6.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 14.20
Speed 1/min : 1040...1050
2nd c-rod trav.mm : 4.00
Speed 1/min : 1165...1195
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 225
C-rod trav.mm : 5.50...5.70
C-rod trav.mm : 2.00
Speed 1/min : 360...420

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 15.20...15.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.40...12.50
2nd pressure hPa : 535
C-rod trav.mm : 14.60...14.70
3rd pressure hPa : 290
C-rod trav.mm : 13.10...13.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900
Speed 1/min : 1000
Del. quantity cm³/ 1000H.: 226.0...234.0
1000H.: (224.0...236.0)
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ 1000H.: 169.0...173.0
1000H.: (167.0...175.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ 1000H.: 240.0...290.0
(-)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 5.50...5.70
Del. quantity cm³/ 1000H.: 18.0...22.0
(-) (15.0...25.0)
Dispersion cm³/ 1000H.: 3.00
(-) (6.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on August 20, 1987.
Start of delivery - engine: 15° before
TDC
Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 E 1
 Edition : 09.03.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 402 648 831

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350..1050PA842-2
 Governor no. : 0 421 813 589

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Contr.-rod trav.mm: 20.00...21.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.50...14.70

Del.quantity cm3/ : 21.2...21.4

100H.: (20.9...21.7)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.7...5.9

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.90...2.10

2nd speed 1/min: 700

Sleeve travel mm: 4.00...4.40

3rd speed 1/min: 1100

Sleeve travel mm: 6.80...7.20

4th speed 1/min: 1200

Sleeve travel mm: 8.30...8.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600
Charge press. hPa : 750
Del.quantity cm³/ : 212.0...214.0
1000H.: (209.0...217.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 14.20
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1175...1205
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.40
Speed 1/min : 350
C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION

Speed 1/min : 350...550

TORQUE CONTROL

2nd speed 1/min : 1050
C-rod trav.mm : 15.20...15.40
3rd speed 1/min : 975
C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 600
Pressure hPa : 750
Contr.-rod trav.mm: 14.50...14.70

Measurement
Speed 1/min : 600

1st pressure hPa : 400
C-rod trav.mm : 12.20...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.60...13.80
3rd pressure hPa : 900
C-rod trav.mm : 14.70...14.80
4th pressure hPa : 1250

C-rod trav.mm : 15.50...15.70
5th pressure hPa : 150
C-rod trav.mm : 11.20...11.40

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm³/ : 227.0...230.0
1000H.: (224.0...233.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 900
Del.quantity cm³/ : 238.0...242.0
1000H.: (235.0...245.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm³/ : 156.0...159.0
1000H.: (153.0...162.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 150.0...152.0
1000H.: (147.0...155.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 14.20
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 E
Edition : 02.11.87
Superceeded : 9.3.87
Calibrating oil : ISO-4113

Combination no. : 0 402 648 831

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818
Governor
Governor design. : RQV350..1050PA842-3
Governor no. : 0 421 813 622

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Contr.-rod trav.mm: 20.00...21.00

Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/min: 600

Contr.-rod trav.mm: 14.50...14.70

Del.quantity cm³/ : 21.2...21.4

100H.: (20.9...21.7)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.7...5.9

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
externally-mounted governor**SLEEVE TRAVELS**

1st speed 1/min: 350

Sleeve travel mm: 1.90...2.10

2nd speed 1/min: 700

Sleeve travel mm: 4.00...4.40

3rd speed 1/min: 1100

Sleeve travel mm: 6.80...7.20

4th speed 1/min: 1200

Sleeve travel mm: 8.30...8.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travellmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed	1/min:	600
Charge press.	hPa :	750
Del.quantity	cm³/	212.0...214.0
	1000H.:	(209.0...217.0)
Dispersion	cm³/	5.00
	1000H.:	(9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 14.20
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1175...1205
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I
Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.40
Speed 1/min : 350
C-rod trav.mm : 5.70...5.90

CONSTANT REGULATION
Speed 1/min : 350...550

TORQUE CONTROL
2nd speed 1/min : 1050
C-rod trav.mm : 15.20...15.40
3rd speed 1/min : 975
C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 600
Pressure hPa : 750
Contr.-rod trav.mm: 14.50...14.70

Measurement
Speed 1/min : 600

1st pressure hPa	:	400
C-rod trav.mm	:	12.20...12.40
2nd pressure hPa	:	550
C-rod trav.mm	:	13.60...13.80
3rd pressure hPa	:	900
C-rod trav.mm	:	14.70...14.80
4th pressure hPa	:	1250

C-rod trav.mm : 15.50...15.70
5th pressure hPa : 150
C-rod trav.mm : 11.20...11.40

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm³/ : 227.0...230.0
1000H.: (224.0...233.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 900
Del.quantity cm³/ : 238.0...242.0
1000H.: (235.0...245.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 1050
Del.quantity cm³/ : 156.0...159.0
1000H.: (153.0...162.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 150.0...152.0
1000H.: (147.0...155.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

:

| BOSCH INJ. PUMP TEST SPECIFICATIONS

| Note inst. in remarks column

| Test sheet : SCA 14,0 H1

| Edition : 02.11.87

| Superceded : -

| Calibrating oil : ISO-4113

| Combination no. : 0 402 648 836

| Injection pump

| Pump designation : PE8P120A920/4LS7125T

| EP type number : 0 412 628 824

| Governor

| Governor design. : RQV200...950PA736-4

| Governor no. : 0 421 813 646

| Customer-spec. information

| Customer : SAAB-SCANIA

| Engine : DSC14 03 L09,L10

| TEST BENCH REQUIREMENTS

| Calibrating-oil

| inlet temp. °C : 38...42

| Overflow valve

: 1 417 413 025

| Inlet press., bar : 1.50

| Calibrating nozzle-holder
assembly : 1 688 901 019

| Opening

| pressure, bar : 207...210

| Perforated-plate
diameter mm : 0,8

| Test inj. tubing : 1 680 750 015

| Outside diameter

| x Wall thickness

| x Length mm : 6.00X1.50X600

| (A) Injection pump setting values

| Insp. values in parentheses

| Set constant delivery quant.

| per values -----

| START OF DELIVERY

| Test pressure, bar: 25...27

| Prestroke mm : 5.00...5.10

: (4.95...5.15)

| Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-
6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 13.50...13.60

Del.quantity cm³/ : 21.4...21.6
100H.: (21.1...21.9)

Dispersion cm³/ : 0.6
100H.: (0.9)

2nd speed 1/min: 225.0
Contr.-rod trav. m: 4.9...5.1
Del.quantity cm³/ : 1.6...2.0
100H.: (1.4...2.2)

Dispersion cm³/ : 0.3
100H.: (0.6)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225
Sleeve travel mm: 1.10...1.50
2nd speed 1/min: 350
Sleeve travel mm: 2.30...2.90
3rd speed 1/min: 650
Sleeve travel mm: 4.30...4.90
4th speed 1/min: 995
Sleeve travel mm: 7.50...7.70
5th speed 1/min: 1125
Sleeve travel mm: 9.00...9.40

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1070
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 700
Charge press. hPa : 900
Del.quantity cm³/ : 214.0...216.0
1000H.: (211.0...219.0)

Dispersion cm³/ : 6.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 54...62

Testing:
1st c-rod trav.mm : 12.50
Speed 1/min : 990...1000
2nd c-rod trav.mm : 4.00
Speed 1/min : 1110...1140
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Control-lever
position degrees: 6...14

Testing:
Speed 1/min : 100
C-rod trav.mm min : 6.40
Speed 1/min : 225
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 340...400

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.50...13.60

Measurement
Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 10.70...10.80
2nd pressure hPa : 445
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 325
C-rod trav.mm : 11.40...11.60

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 900
Speed 1/min : 950
Del.quantity cm³/ : 203.0...211.0
1000H.: (201.0...213.0)
Charge press. hPa : -
Speed 1/min : 500

Del.quantity cm³/ : 138.0...142.0
1000H.: (136.0...144.0)

Test specifications approved by Scania
on August 20, 1987.
Start of delivery - engine: 16° before
TDC
Engine firing sequence: 1-5-4-2-6-3-7-8

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.50
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...290.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 16.0...20.0
1000H.: (14.0...22.0)
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 L 1

Edition : 02.11.87

Superceeded : 27.3.87

Calibrating oil : ISO-4113

Combination no. : 0 402 649 801

Injection pump

Pump designation : PE10P120A320LS7809-1

EP type number : 0 412 629 801

Governor

Governor design. : RQ300/1050PA717-1

Governer no. : 0 421 801 396

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 401.0

Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Contr.-rod trav.mm: 20.00...21.00

Cam sequence : 10- 9- 4- 1- 8- 7

- 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-

216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.70...14.90

Del.quantity cm³/ : 21.9...22.1

100H.: (21.6...22.4)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.6...6.8

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 2.80...3.00

2nd speed 1/min: 600

Sleeve travel mm: 6.00...6.20

3rd speed 1/min: 900

Sleeve travel mm: 6.10...6.30

4th speed 1/min: 1000

Sleeve travel mm: 6.30...6.40

5th speed 1/min: 1150

Sleeve travel mm: 9.30...9.70

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travlmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 600
 Charge press. hPa : 900
 Del.quantity cm³/ : 219.0...221.0
 1000H.: (216.0...224.0)
 Dispersion cm³/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:
 Speed 1/min : 600
 Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 14.20
 Speed 1/min : 1095...1110
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1150...1180
 4th speed 1/min : 1300
 C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
 Speed 1/min : 300
 Contr.-rod trav.mm: 6.7

Testing:

Speed 1/min : 100
 C-rod trav.mm min : 8.30
 Speed 1/min : 300
 C-rod trav.mm : 6.60...6.80
 C-rod trav.mm : 2.00
 Speed 1/min : 380...420

TORQUE CONTROL

2nd speed 1/min : 1050
 C-rod trav.mm : 15.20...15.40
 3rd speed 1/min : 800
 C-rod trav.mm : 15.50...15.70

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
 Setting
 Speed 1/min : 600
 Pressure hPa : 900
 Contr.-rod trav.mm: 14.70...14.90

Measurement
 Speed 1/min : 600

1st pressure hPa : 400
 C-rod trav.mm : 12.10...12.30
 2nd pressure hPa : 600

C-rod trav.mm : 13.60...13.80
 3rd pressure hPa : 960
 C-rod trav.mm : 14.80...14.90
 4th pressure hPa : 1100
 C-rod trav.mm : 15.20...15.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
 Charge press. hPa : 1300
 Speed 1/min : 1050
 Del.quantity cm³/ : 229.0...232.0
 1000H.: (226.0...235.0)
 Dispersion cm³/ : 8.00
 1000H.: (12.0)
 Charge press. hPa : 1300
 Speed 1/min : 800
 Del.quantity cm³/ : 234.0...238.0
 1000H.: (231.0...241.0)
 Dispersion cm³/ : 8.00
 1000H.: (12.0)
 Charge press. hPa : -
 Speed 1/min : 500
 Del.quantity cm³/ : 133.0...135.0
 1000H.: (130.0...138.0)
 Dispersion cm³/ : 8.00
 1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
 1mm control-rod travel less than
 full-load trav.mm: 14.20
 Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
 Del.quantity cm³/ : 230.0...250.0
 1000H.: (226.0...254.0)

Remarks : :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G 1
Edition : 02.11.87
Superceeded : 1.9.87
Calibrating oil : ISO-4113

Combination no. : 0 402 678 803

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818
Governor
Governor design. : RSV350...750POA825-3
Governor no. : 0 421 833 260

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 240.0
Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.10...15.20

Del.quantity cm³/ : 23.3...23.5

100H.: (23.0...23.8)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.2...5.4

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travellmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm³/ : 233.0...235.0

1000H.: (230.0...238.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 24...32

Testing:

F23

1st c-rod trav.mm : 14.10
Speed 1/min : 750...755
2nd c-rod trav.mm : 4.00
Speed 1/min : 775...788
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 10...18
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 5.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 18.00
Speed 1/min : 350
C-rod trav.mm : 5.20...5.40
C-rod trav.mm : 2.00
Speed 1/min : 350...410

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

2nd speed 1/min : 900
C-rod trav.mm : 13.20...13.40
3rd speed 1/min : 1000
C-rod trav.mm : 12.40...12.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm³/ : 233.0...239.0
1000H.: (230.0...242.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 230.0...250.0
1000H.: (226.0...254.0)

Remarks:

APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 N 8
 Edition : 02.11.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 403 446 166

Injection pump
 Pump designation : PES6MW100/720RS1133
 EP type number : 0 413 406 126
 Governor
 Governor design. : RQ325...1325MW65
 Governer no. : 0 420 082 018

Customer-spec. information
 Customer : KHD

Engine : BF 6L 913 BW

1st version kW : 124.0
 Speed 1/min: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1325

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 10.1...10.3

100H.: (9.9...10.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.0...7.1

Del.quantity cm3/ : 1.1...1.5

100H.: (0.9...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 700

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1325

Charge press. hPa : 700

Del.quantity cm3/ : 101.0...103.0

1000H.: (99.0...105.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 26...34

Setting point:

Speed 1/min : 700

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1375...1385

2nd c-rod trav.mm : 4.00

Speed 1/min : 1445...1475

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1550
C-rod trav.mm : 0.10...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.60
Speed 1/min : 325
C-rod trav.mm : 7.00...7.10

CONSTANT REGULATION

Speed 1/min : 340...450

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.50...9.60
2nd pressure hPa : 350
C-rod trav.mm : 10.10...10.40
3rd pressure hPa : 450
C-rod trav.mm : 10.70...10.80

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 850
Del.quantity cm³/ : 93.0...97.0
1000H.: (91.0...99.0)
Dispersion cm³/ : 3.50
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 57.0...59.0
1000H.: (55.0...61.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 100

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1375...1385

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 120.0...140.0
1000H.: (117.0...143.0)

LOW IDLE

Speed 1/min : 325
Contr.-rod trav.mm: 7.00...7.10
Del.quantity cm³/ : 11.0...15.0
1000H.: (9.0...17.0)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

| BOSCH INJ. PUMP TEST SPECIFICATIONS

| Note inst. in remarks column

| Test sheet : PEN 6,1 P 3
| Edition : 06.11.87
| Superceeded : 12.85
| Calibrating oil : ISO-4113

| Combination no. : 0 403 446 167

| Injection pump
| Pump designation : PES6MW100/320RS1136
| EP type number : 0 413 406 128
| Governor
| Governor design. : RQV350...1100MW54-2
| Governer no. : 0 420 083 096

| Customer-spec. information
| Customer : VOLVO

| Engine : TD 61

| 1st version kW : 111.0
| Speed 1/min: 2200

| TEST BENCH REQUIREMENTS

| Calibrating-oil
| inlet temp. °C : 38...42

| Overflow valve : 1 417 413 000

| Inlet press., bar : 1.50

| Calibrating nozzle-holder
| assembly : 0 681 343 009

| Opening
| pressure, bar : 172...175

| Test inj. tubing : 1 680 750 014

| Outside diameter
| x Wall thickness
| x Length mm : 6.00X2.00X600

| (A) Injection pump setting values
| Insp. values in parentheses
| Set constant delivery quant.
| per values -----

| START OF DELIVERY

| Test pressure, bar: 30...32

| Prestroke mm : 3.00...3.10
| : (2.95...3.15)
| Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 12.40...12.50

Del.quantity cm³/ : 11.0...11.2

100H.: (10.8...11.4)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm³/ : 1.6...2.0

100H.: (1.4...2.2)

Dispersion cm³/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del.quantity cm³/ : 110.0...112.0

1000H.: (108.0...114.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Testing:

1st c-rod trav.mm : 11.40

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1200...1230

4th speed 1/min : 1350

C-rod trav.mm : 0.10...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.80
Speed 1/min : 350
C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 370...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 480
Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.90...11.00
2nd pressure hPa : 340
C-rod trav.mm : 11.10...11.40
3rd pressure hPa : 700
C-rod trav.mm : 12.40...12.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 1000

Del.quantity cm³/ : 111.0...115.0
1000H.: (109.0...117.0)

Dispersion cm³/ : 3.50

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm³/ : 82.0...84.0
1000H.: (80.0...86.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 100

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.40

Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 140.0...160.0
1000H.: (137.0...163.0)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 6.30...6.40

Del.quantity cm³/ : 16.0...20.0
1000H.: (14.0...22.0)

Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6.0 D 26
Edition : 02.11.87
Superceeded : 10.08.87
Calibrating oil : ISO-4113

Combination no. : 0 403 446 177

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW48
Governor no. : 0 420 083 066

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 8.2...8.4

100H.: (8.0...8.6)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm³/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.30...9.70

3rd speed 1/min: 500

Sleeve travel mm: 2.70...3.30

4th speed 1/min: 300

Sleeve travel mm: 1.20...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1350

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm³/ : 82.5...84.5

1000H.: (80.5...86.5)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1340...1350
2nd c-rod trav.mm : 4.00
Speed 1/min : 1425...1455
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 8.70
Speed 1/min : 300
C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...500

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1300
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 800
C-rod trav.mm : 11.80...12.00
3rd speed 1/min : 585
C-rod trav.mm : 12.00...12.20
4th speed 1/min : 1100
C-rod trav.mm : 11.00...11.10

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800
Del.quantity cm³/ : 82.0...84.0
1000H.: (80.0...86.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)
Speed 1/min : 585
Del.quantity cm³/ : 77.5...80.5
1000H.: (75.0...83.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 80.0...90.0
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm³/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 27
Edition : 24.07.87
Superceeded : 13.05.87
Calibrating oil : ISO-4113

Combination no. : 0 403 446 179

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW74
Governor no. : 0 420 083 112

CUSTOMER-SPEC. INFORMATION

Customer : MBB

Engine : OM 366 LA

1st version kW : 127.0

Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 7.6...7.8

100H.: (7.4...8.0)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm³/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.50...9.70

3rd speed 1/min: 700

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 300

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1335

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm³/ : 76.0...78.0

1000H.: (74.0...80.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1425...1455

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.70

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 750

C-rod trav.mm : 11.70...11.80

3rd speed 1/min : 1125

C-rod trav.mm : 11.40...11.50

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm³/ : 68.0...70.0

1000H.: (65.0...73.0)

Dispersion cm³/ : 5.00

1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm³/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 8,8 K 6
Edition : 5.11.86
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 403 446 180

Injection pump
Pump designation : PES6MW100/320RS1016
EP type number : 0 413 406 010
Governor
Governor design. : RQV300...1300MW25-6
Governor no. : 0 420 083 115

Customer-spec. information
Customer : RVI

Engine : MIDR-062-12-I

1st version kW : 130,0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 021

Inlet press., bar : 2.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Contr.-rod trav.mm: 9.0...12.00

Cam sequence : 1- 5- 3- 6- 2- 4
SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm³/ : 9.1...9.3

100H.: (8.9...9.5)

Dispersion cm³/ : 0.35

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.80...5.90

Del.quantity cm³/ : 0.9...1.35

100H.: (0.7...1.6)

Dispersion cm³/ : 0.35

100H.: (0.55)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1300

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm³/ : 91.0...93.0

1000H.: (89.5...95.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1350...1370

2nd c-rod trav.mm : 4.30

Speed 1/min : 1480...1510

4th speed 1/min : 1600

C-rod trav.mm : 1.40...0.40

LOWEST RATED SPEED I

608

Control-lever
position degrees: 10...18
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 5.80...5.90
Speed 1/min : 200
C-rod trav.mm max : 3.70

CONSTANT REGULATION
Speed 1/min : 325...550

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 220

Contr.-rod trav.mm: 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 700

C-rod trav.mm : 11.50...11.60

2nd pressure hPa :

C-rod trav.mm : 9.30...9.40

3rd pressure hPa : 265

C-rod trav.mm : 10.80...11.10

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 900

Del.quantity cm³/ : 88.0...92.0

1000H.: (86.0...94.0)

Dispersion cm³/ : 5.00

1000H.: (7.00)

Charge press. hPa :

Speed 1/min : 500

Del.quantity cm³/ : 48.0...50.0

1000H.: (46.0...52.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.50

Speed 1/min : 1350...1370

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 100.0...110.0
1000H.: (97.0...113.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 5.80...5.90
Del.quantity cm³/ : 9.50...13.50
1000H.: (7.00...16.00)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R22
 Edition : 02.11.87
 Superceeded : 10.08.87
 Calibrating oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump
 Pump designation : PES6MW100/320RS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RQV350...1300MW72-2
 Governer no. : 0 420 083 141

Customer-spec. information

Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
 assembly : 1 688 901 016Opening
 pressure, bar : 207...210Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm	: 3.95...4.05
	: (3.90...4.10)
Contr.-rod trav.mm	: 9.00...12.00
Cam sequence	: 1- 5- 3- 6- 2- 4

SD ang. spacing°CS	: 0-60-120-180-240-300
Tolerance + -	: 0.50 (0.75)

BASIC SETTING

1st speed	1/mi: 900
Contr.-rod trav.mm	: 10.00...10.10
Del.quantity cm3/	: 8.6...8.8
	100H.: (8.4...9.0)
Dispersion	cm3/ : 0.3
	100H.: (0.6)
2nd speed	1/min: 350.0
Contr.-rod trav. m	: 6.4...6.5
Del.quantity cm3/	: 1.9...2.3
	100H.: (1.6...2.5)
Dispersion	cm3/ : 0.3
	100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed	1/min: 1350
Sleeve travel mm:	8.30...8.50
2nd speed	1/min: 1460
Sleeve travel mm:	9.10...9.50
3rd speed	1/min: 550
Sleeve travel mm:	3.10...3.70
4th speed	1/min: 350
Sleeve travel mm:	1.30...1.70

SLEEVE POSITION

Control-lever position	
Degree:	-1
Speed	1/min: 1510
Cont.-rod travellmm:	6.60...9.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version	
Speed	1/min: 900
Del.quantity cm3/	: 86.0...88.0
	1000H.: (84.0...90.0)
Dispersion	cm3/ : 3.50
	1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 45...50

Testing:

1st c-rod trav.mm : 9.00
Speed 1/min : 1360...1380
2nd c-rod trav.mm : 4.00
Speed 1/min : 1460...1470
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.4

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.40...6.50

CONSTANT REGULATION

Speed 1/min : 300...450

SWITCH-OVER POINT

Speed 1/min : 220 (280)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 1300
Del. quantity cm³/ : 88.0...92.0
1000H.: (86.0...94.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 9.00
Speed 1/min : 1360...1380

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.40...6.50
Del. quantity cm³/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R21

Edition : 02.11.87

Superceeded : 31.07.87

Calibrating oil : ISO-4113

Combination no. : 0 403 446 195

Injection pump

Pump designation : PES6MW100/320RS1112

EP type number : 0 413 406 108

Governor

Governor design. : RQV350...1200MW46-13

Governor no. : 0 420 083 144

Customer-spec. information

Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180.0

Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 016Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 800

Contr.-rod trav.mm: 12.30...12.40

Del.quantity cm³/ : 11.7...11.9

100H.: (11.5...12.1)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm³/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1380

Cont.-rod travemm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Charge press. hPa : 800

Del.quantity cm³/ : 117.5...119.5

1000H.: (115.5...121.5)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 43...48

Testing:

1st c-rod trav.mm : 11.30
Speed 1/min : 1265...1285
2nd c-rod trav.mm : 4.00
Speed 1/min : 1395...1405
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 360...450

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 190
Contr.-rod trav.mm: 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.60...10.70
2nd pressure hPa : 360
C-rod trav.mm : 11.90...12.20
3rd pressure hPa : 800
C-rod trav.mm : 12.30...12.40

SWITCH-OVER POINT

Speed 1/min : 280 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800
Speed 1/min : 1200

Del.quantity cm³/ : 120.0...124.0
1000H.: (118.0...126.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 86.0...88.0
1000H.: (84.0...90.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.30
Speed 1/min : 1265...1285

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.30...6.40
Del.quantity cm³/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R24

Edition : 02.11.87

Superceeded : 10.08.87

Calibrating oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump

Pump designation : PES6MW100/320RS1112

EP type number : 0 413 406 108

Governor

Governor design. : RQV350...1200MW46-15

Governor no. : 0 420 083 146

Customer-spec. information

Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0

Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 016Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm	:	3.95...4.05
	:	(3.90...4.10)
Contr.-rod trav.mm	:	9.00...12.00
Cam sequence	:	1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 9.9...10.1

100H.: (9.7...10.3)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.4

Del.quantity cm³/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1380

Cont.-rod trav!mm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Charge press. hPa : 800

Del.quantity cm³/ : 99.0...101.0

1000H.: (97.0...103.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 43...48

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1270...1290
2nd c-rod trav.mm : 4.00
Speed 1/min : 1380...1390
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.3

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.00
Speed 1/min : 350
C-rod trav.mm : 6.30...6.40

CONSTANT REGULATION

Speed 1/min : 360...450

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 200
Contr.-rod trav.mm: 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.40...10.50
2nd pressure hPa : 280
C-rod trav.mm : 10.80...11.10
3rd pressure hPa : 800
C-rod trav.mm : 11.00...11.10

SWITCH-OVER POINT

Speed 1/min : 280 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800
Speed 1/min : 1200

Del.quantity cm³/ : 101.0...105.0
1000H.: (99.0...107.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 84.0...86.0
1000H.: (82.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 10.00
Speed 1/min : 1270...1290

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...180.0
1000H.: (137.0...183.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 6.30...6.40
Del.quantity cm³/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13.4 E1

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 403 548 015

Injection pump

Pump designation : PE8MW100/720LS1149

EP type number : 0 413 508 105

Governor

Governor design. : RQV450...1150MW70

Governor no. : 0 420 083 103

Customer-spec. information

Customer : KHD

Engine : F 8L 513

1st version kW : 155.0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-
4- 3SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.30...10.40

Del.quantity cm³/ : 9.0...9.2

: 100H.: (8.8...9.4)

Dispersion cm³/ : 0.3

: 100H.: (0.6)

2nd speed 1/min: 450.0

Contr.-rod trav. m: 6.1...6.3

Del.quantity cm³/ : 1.3...1.7

: 100H.: (1.1...2.0)

Dispersion cm³/ : 0.3

: 100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1170

Cont.-rod trav.lmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm³/ : 90.0...92.0

: 1000H.: (88.0...94.0)

Dispersion cm³/ : 3.50

: 1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.50

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 14...22
Setting point w/out aux. spring
Speed 1/min : 450
Contr.-rod trav.mm: 6.2

Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:
:

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 450
C-rod trav.mm : 6.10...6.30

CONSTANT REGULATION
Speed 1/min : 470...570

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1150
C-rod trav.mm : 10.30...10.40
2nd speed 1/min : 875
C-rod trav.mm : 11.40...11.50
3rd speed 1/min : 1050
C-rod trav.mm : 10.50...10.80

SWITCH-OVER POINT

Speed 1/min : 370 (390)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 875
Del.quantity cm³/ : 101.0...103.0
1000H.: (99.0...105.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.30
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 130.0...140.0
1000H.: (127.0...143.0)

LOW IDLE

Speed 1/min : 450
Contr.-rod trav.mm: 6.10...6.30
Del.quantity cm³/ : 13.0...17.0
1000H.: (11.0...20.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 17.4 A
Edition : 02.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 405 638 201

Injection pump
Pump designation : PE8PM120A120RS7119
EP type number : 0 415 628 201
Governor
Governor design. : RQ350/115OPA791
Governor no. : 0 421 801 340

Customer-spec. information
Customer : PERKINS

Engine : MCY 80

1st version KW : 410,0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm	: 5.00...5.10		2nd c-rod trav.mm : 4.00
	: (4.95...5.15)		Speed 1/min : 1285...1315
Contr.-rod trav.mm:	9.00...12.00		4th speed 1/min : 1400
Cam sequence	: 1- 3- 6- 5- 4- 8-		C-rod trav.mm : 0.00...1.00
	7- 2		
SD ang. spacing°CS:	0-45-90-135-180-225-		LOWEST RATED SPEED I
	270-315		Setting point w/out aux. spring
Tolerance + - °	: 0.50 (0.75)		Speed 1/min : 350
BASIC SETTING			Contr.-rod trav.mm: 4.1
1st speed	1/min: 1150		Testing:
	-----		Speed 1/min : 100
Contr.-rod trav.mm:	13.60...13.70		C-rod trav.mm min : 5.50
	-----		Speed 1/min : 350
Del.quantity cm ³ /	: 25.7...25.9		C-rod trav.mm : 4.00...4.20
	100H.: (25.4...26.2)		C-rod trav.mm : 2.00
Dispersion	cm ³ / : 0.5		Speed 1/min : 390...430
	100H.: (0.9)		Adjustment test, manifold-pressure
2nd speed	1/min: 350.0		compensator (LDA,ADA,ALDA)
Contr.-rod trav. m:	4.0...4.2		
Del.quantity cm ³ /	: 1.7...2.3		1st version
	100H.: (1.4...2.6)		Setting
Dispersion	cm ³ / : 0.8		Speed 1/min : 500
	100H.: (1.2)		Pressure hPa : 1200
SLEEVE POSITION			Contr.-rod trav.mm: 13.60...13.70
Control-lever position			Measurement
	Degree: -1		Speed 1/min : 500
Speed	1/min: 750		1st pressure hPa : -
Cont.-rod travelmm:	14.70...16.30		C-rod trav.mm : 10.60...10.80.
FULL-LOAD DELIV. AT FULL-LOAD STOP			2nd pressure hPa : 890
1st version			C-rod trav.mm : 12.90...13.00
Speed	1/min: 1150		3rd pressure hPa : 590
Charge press. hPa	: 1200		C-rod trav.mm : 11.30...11.50
Del.quantity cm ³ /	: 257.0...259.0		SWITCH-OVER POINT
	1000H.: (254.0...262.0)		Speed 1/min : 300 (0)
Dispersion	cm ³ / : 5.00		FUEL-DELIVERY CHARACTERISTICS
	1000H.: (9.00)		
HIGHEST RATED SPEED			1st version
1st version			Charge press. hPa : 1200
Setting point:			Speed 1/min : 700
Speed	1/min : 750		Del.quantity cm ³ / : 265.0...271.0
Contr.-rod trav.mm:	15.5		1000H.: (262.0...274.0)
Testing:			Charge press. hPa : -
1st c-rod trav.mm	: 12.60		Speed 1/min : 700
	Speed 1/min : 1195...1210		Del.quantity cm ³ / : 192.0...196.0
			1000H.: (190.0...198.0)
ROTATIONAL-SPEED LIMITATION			
1st version			

1mm control-rod travel less than

full-load trav.mm: 12.60
Speed 1/min : 1195...1210

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 195.0...215.0
1000H.: (192.0...218.0)
Contr.-rod trav.mm: 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 B 2

Edition : 12.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 9 400 083 452

Injection pump

Pump designation : PES6A100D320/3RS2691

-2

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1250AB1225R

Governer no. : 9 420 080 224

Customer-spec. information

Customer : CUMMINS

Engine : 6 C 8.3L

1st version kW : 123.0

Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed 1/mi: 1250

Contr.-rod trav.mm: 11.20...11.30

Del.quantity cm3/ : 10.3...10.5

100H.: (10.1...10.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 1.4...1.8

100H.: (1.1...2.0)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1200

Sleeve travel mm: 8.50...8.60

2nd speed 1/min: 900

Sleeve travel mm: 6.10...6.50

3rd speed 1/min: 500

Sleeve travel mm: 4.30...4.70

4th speed 1/min: 350

Sleeve travel mm: 2.20...3.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1300

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1250

Del.quantity cm³/ : 103.5...105.5
1000H.: (101.5...107.5)

Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 115...123

Testing:
1st c-rod trav.mm : 10.20
Speed 1/min : 1290...1300
2nd c-rod trav.mm : 4.00
Speed 1/min : 1390...1420
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 67...75

Testing:
Speed 1/min : 100
C-rod trav.mm min : 10.00
Speed 1/min : 350
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 400...460

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 1250
C-rod trav.mm : 11.20...11.30
2nd speed 1/min : 500
C-rod trav.mm : 11.80...11.90
3rd speed 1/min : 600
C-rod trav.mm : 11.50...11.70
4th speed 1/min : 750
C-rod trav.mm : 11.30...11.60

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 500
Del.quantity cm³/ : 101.0...104.0
1000H.: (98.5...106.5)
Speed 1/min : 600
Del.quantity cm³/ : 103.5...106.5
1000H.: (101.0...109.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.20
Speed 1/min : 1290...1300

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 168.0...182.0
1000H.: (165.0...185.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.40...5.60
Del.quantity cm³/ : 14.0...18.0
1000H.: (11.5...20.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 K

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 085 292

Injection pump

Pump designation : PES6A95D410RS2742

EP type number : 9 400 084 011

Governor

Governor design. : RQV350...1300AB1220-
1L

Governer no. : 9 420 080 239

Customer-spec. information

Customer : FORD FNH

Engine : 6,6 L

1st version kW : 123.0

Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25

: (3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing °CS: 0-60-120-180-240-300

Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00

& c-rod trav max. : 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm3/ : 9.4...9.6

100H.: (9.1...9.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.4...7.6

Del.quantity cm3/ : 2.2...2.6

100H.: (1.9...2.8)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externatly-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.60...2.30

2nd speed 1/min: 500

Sleeve travel mm: 3.20...3.60

3rd speed 1/min: 700

Sleeve travel mm: 4.00...4.40

4th speed 1/min: 1000

Sleeve travel mm: 5.40...5.80

5th speed 1/min: 1390

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1540

Cont.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min : 1300
Charge press. hPa : 600
Del.quantity cm³/ : 94.0...96.0
1000H.: (91.5...98.5)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 111...119

Testing:

1st c-rod trav.mm : 11.80
Speed 1/min : 1340...1350
2nd c-rod trav.mm : 4.00
Speed 1/min : 1480...1510
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 68...76

Testing:

Speed 1/min : 100
C-rod trav.mm min : 10.00
Speed 1/min : 350
C-rod trav.mm : 7.40...7.60
C-rod trav.mm : 2.00
Speed 1/min : 700...760

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.80...10.90
2nd pressure hPa : 300
C-rod trav.mm : 11.10...11.30
3rd pressure hPa : 400
C-rod trav.mm : 12.30...12.40

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 800
Del.quantity cm³/ : 83.5...87.5
1000H.: (81.5...89.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 58.5...60.5
1000H.: (56.0...63.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.80
Speed 1/min : 1340...1350

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 180.0...200.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 7.40...7.60
Del.quantity cm³/ : 22.0...26.0
1000H.: (19.5...28.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEZ 6,1 A
 Edition : 21.05.87
 Superceeded : -
 Calibrating oil : ISO-4113

Combination no. : 9 400 085 293

Injection pump
 Pump designation : PES6A80D410RS2527
 EP type number : 9 400 093 005
 Governor
 Governor design. : RQV300...1400AB1234L
 Governer no. : 9 420 080 241

Customer-spec. information
 Customer : DEUTZ ARGENTINA

Engine : F 6 L 913

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm³/ : 6.9...7.0

100H.: (6.7...7.1)

Dispersion cm³/ : 0.2

100H.: (0.4)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.4...8.6

Del.quantity cm³/ : 0.8...1.1

100H.: (0.7...1.3)

Dispersion cm³/ : 0.2

100H.: (0.3)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.50...1.00

2nd speed 1/min: 600

Sleeve travel mm: 2.70...3.10

3rd speed 1/min: 800

Sleeve travel mm: 4.10...4.50

4th speed 1/min: 1100

Sleeve travel mm: 5.80...6.10

5th speed 1/min: 1485

Sleeve travel mm: 8.40...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1485

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1400

Del.quantity cm³/ : 69.0...70.0

1000H.: (67.5...71.5)

Dispersion cm³/ : 2.50

1000H.: (4.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 11.00
Speed 1/min : 1440...1450
2nd c-rod trav.mm : 4.00
Speed 1/min : 1570...1600
3rd c-rod trav.mm : 4.00
4th speed 1/min : 1700
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 7.50
Speed 1/min : 300
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 540...600

CONSTANT REGULATION

Speed 1/min : 400...500

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 1400
C-rod trav.mm : 12.00...12.10
2nd speed 1/min : 500
C-rod trav.mm : 12.90...13.00
3rd speed 1/min : 1000
C-rod trav.mm : 12.70...12.90
4th speed 1/min : 1200
C-rod trav.mm : 12.20...12.50

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500
Del.quantity cm³/ 1000H.: 63.0...65.0
Speed 1/min : 1000
Del.quantity cm³/ 1000H.: 67.0...69.0

(61.0...67.0) (65.0...71.0)

1mm control-rod travel less than

full-load trav.mm: 11.00
Speed 1/min : 1440...1450

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Contr.-rod trav.mm: 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 4,4 C
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 085 294

Injection pump
Pump designation : PES4A95D410RS2752
EP type number : 9 400 084 014
Governor
Governor design. : RS350/1300A2B2149-3L
Governor no. : 9 420 083 235

Customer-spec. information
Customer : FORD-FNH

Engine : 4,4 L

1st version kW : 85.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 3- 4- 2

SD ang. spacing^oCS: 0-90-180-270
Tolerance + -^o : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference^o CS : 4.00...5.00

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm³/ : 9.6...9.8

100H.: (9.4...10.1)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm³/ : 1.2...1.6

100H.: (1.0...1.9)

Dispersion cm³/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.10

Governor-spring reload

Notch setting x : 5.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm³/ : 96.5...98.5

1000H.: (94.0...101.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

H02

Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 12.00
Speed 1/min : 1360...1370
2nd c-rod trav.mm : 4.00
Speed 1/min : 1465...1495
4th speed 1/min : 1600
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 21...29
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 550
C-rod trav.mm min : 2.70
Speed 1/min : 350
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 1340...140
Speed 1/min : 550
C-rod trav.mm max : 3.50

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1300
C-rod trav.mm : 13.00...13.10
2nd speed 1/min : 500
C-rod trav.mm : 13.00...13.20
5th speed 1/min : 400
C-rod trav.mm : 14.40...14.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500
Del.quantity cm³/ : 83.0...87.0
1000H.: (81.0...89.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 12.00
Speed 1/min : 1360...1370

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 150.0...170.0
1000H.: (-)

Contr.-rod trav,mm: 20.00...21.00

Remarks:

:

I BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 N 14

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 085 296

Injection pump

Pump designation : PES6A90D410RS2293

EP type number : 0 410 896 031

Governor

Governor design. : RQV300...1425AB740-5

L

Governer no. : 9 420 080 249

Customer-spec. information

Customer : DAIMLER-BENZ BRAS.

Engine : OM352

1st version kW : 92.0

Speed 1/min: 2850

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
: (2.10...2.30)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^DCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 9.20...9.30

Del.quantity cm³/ : 5.8...5.9

100H.: (5.6...6.1)

Dispersion cm³/ : 0.3

100H.: (0.5)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.4...7.6

Del.quantity cm³/ : 1.0...1.6

100H.: (0.8...1.8)

Dispersion cm³/ : 0.2

100H.: (0.4)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1460

Sleeve travel mm: 8.40...8.60

2nd speed 1/min: 950

Sleeve travel mm: 5.20...5.50

3rd speed 1/min: 775

Sleeve travel mm: 4.10...4.60

4th speed 1/min: 550

Sleeve travel mm: 2.70...3.00

5th speed 1/min: 300

Sleeve travel mm: 0.70...1.20

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1460

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1400

Del.quantity cm³/ : 58.5...59.5

1000H.: (56.5...61.5)

Dispersion cm³/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

HOS

1st version
Control-lever
position degrees: 114...122

Testing:

1st c-rod trav.mm : 8.20

Speed 1/min : 1460...1470

2nd c-rod trav.mm : 4.00

Speed 1/min : 1540...1570

4th speed 1/min : 1700

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 64...72

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.00

Speed 1/min : 300

C-rod trav.mm : 7.40...7.60

C-rod trav.mm : 2.00

Speed 1/min : 680...740

CONSTANT REGULATION

Speed 1/min : 320...550

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1400

C-rod trav.mm : 9.20...9.30

2nd speed 1/min : 500

C-rod trav.mm : 10.10...10.20

3rd speed 1/min : 800

C-rod trav.mm : 9.80...10.00

4th speed 1/min : 1000

C-rod trav.mm : 9.40...9.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 500

Del.quantity cm³/ : 49.0...51.0

1000H.: (46.5...53.5)

Speed 1/min : 800

Del.quantity cm³/ : 55.0...57.0

1000H.: (52.5...59.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.20

Speed 1/min : 1460...1470

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 71.0...81.0

1000H.: (68.0...84.0)

Contr.-rod trav.mm: 13.90...14.30

Remarks:

APPLICATION :

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10_0Q11

Edition : 24.07.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 087 295

Injection pump

Pump designation : PE6P110A320RS3108Y

EP type number : 0 411 816 729

Governor

Governor design. : RQV250...1100PA589-1

Governor no. : 9 420 080 166

Customer-spec. information

Customer : VOLVO

Engine : THD 100 EC

1st version kW : 180,0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 13.8...14.0

100H.: (13.5...14.3)

Dispersion cm3/ : 0.4

100H.: (0.75)

2nd speed 1/min: 250,0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travel mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 138.0...140.0

100H.: (135.0...143.0)

Dispersion cm3/ : 4.00

100H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 55...63

Testing:

1st c-rod trav.mm : 10.10
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1205...1235
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.70
Speed 1/min : 250
C-rod trav.mm : 5.00...5.20
C-rod trav.mm : 2.00
Speed 1/min : 345...405

Adjustment test, manifold-pressure compensator (LDA, ADA, ALDA)

1st version

Setting

Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.60...9.80
2nd pressure hPa : 300
C-rod trav.mm : 9.90...10.00
3rd pressure hPa : 420
C-rod trav.mm : 10.70...10.90

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm³/ 1000H.: 105.5...108.5
(103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.10
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 170.0...200.0
(166.0...204.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.00...5.20
Del.quantity cm³/ 1000H.: 32.0...36.0
(29.5...38.5)
Dispersion cm³/ 1000H.: 3.00
(6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 J

Edition : 06.11.87

Superceeded : 24.7.87

Calibrating oil : ISO-4113

Combination no. : 9 400 087 348

Injection pump

Pump designation : PES6P100A720LS508

EP type number : 9 400 087 053

Governor

Governor design. : RQV350...875PA798-6

Governor no. : 9 420 080 236

Customer-spec. information

Customer : CATERPILLAR

Engine : 3306 DINA

1st version kW : 87.2

Speed 1/min: 1950

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm	:	3.95...4.05
	:	(3.90...4.10)
Contr.-rod trav.mm	:	9.00...12.00
Cam sequence	:	1- 5- 3- 6- 2- 4

SD ang. spacing°CS	:	0-60-120-180-240-300
Tolerance + -	:	0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 875

Contr.-rod trav.mm: 8.80...8.90

Del.quantity cm3/ : 7.1...7.3

100H.: (6.9...7.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.7...6.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.7...1.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.40...3.00

2nd speed 1/min: 450

Sleeve travel mm: 3.10...3.50

3rd speed 1/min: 650

Sleeve travel mm: 5.60...6.00

4th speed 1/min: 920

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 950

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 875

Del.quantity cm3/ : 71.5...73.5

1000H.: (69.5...75.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 7.80
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 950...900
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 11...19

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 5.10...5.30
C-rod trav.mm : 2.00
Speed 1/min : 440...500

CONSTANT REGULATION

Speed 1/min : 350...420

TORQUE CONTROL

Dimension a mm : ?
Torque-control curve - 1st version
1st speed 1/min : 875
C-rod trav.mm : 8.80...8.90
2nd speed 1/min : 600
C-rod trav.mm : 9.50...8.60
3rd speed 1/min : 700
C-rod trav.mm : 9.20...9.40
4th speed 1/min : 750
C-rod trav.mm : 9.00...9.30

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 600
Del. quantity cm³/ 1000H.: 70.0...74.0
Dispersion cm³/ 1000H.: (68.0...76.0)
Speed 1/min : 750
Del. quantity cm³/ 1000H.: 70.5...74.5
Dispersion cm³/ 1000H.: (68.5...76.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 7.80
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ 1000H.: 165.0...185.0
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.10...5.30

Remarks:

:

I BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 D
Edition : 21.05.87
Superceeded : 15.12.86
Calibrating oil : ISO-4113

Combination no. : 9 400 087 353

Injection pump
Pump designation : PES6P110A720RS3157
EP type number : 9 400 087 048
Governor
Governor design. : RQV350..., 1300PA788
Governer no. : 9 420 080 215

Customer-spec. information

Customer : FORD NEW HOLLAND

Engine : 6.6l-TC

1st version kW : 127.0
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1300

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm³/ : 12.8...13.0

 100H.: (12.6...13.2)

Dispersion cm³/ : 0.5

 100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm³/ : 1.9...2.3

 100H.: (1.6...2.5)

Dispersion cm³/ : 0.3

 100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1300
Sleeve travel mm: 7.20...7.30

2nd speed 1/min: 1000
Sleeve travel mm: 5.00...5.30

3rd speed 1/min: 800
Sleeve travel mm: 4.00...4.30

4th speed 1/min: 500
Sleeve travel mm: 2.30...2.70

5th speed 1/min: 350
Sleeve travel mm: 0.60...1.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1350

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 900

Del.quantity cm³/ : 128.0...130.0
 100H.: (126.0...132.0)
Dispersion cm³/ : 5.00
 100H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:

1st c-rod trav.mm : 12.20
Speed 1/min : 1360...1370
2nd c-rod trav.mm : 4.00
Speed 1/min : 1500...1530
4th speed 1/min : 1620
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 11...19

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.50
Speed 1/min : 350
C-rod trav.mm : 7.90...8.10
C-rod trav.mm : 2.00
Speed 1/min : 620...680

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.40...11.50
2nd pressure hPa : 650
C-rod trav.mm : 12.60...12.80
3rd pressure hPa : 530
C-rod trav.mm : 12.00...12.10

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 900
Speed 1/min : 800
Del.quantity cm³/ : 102.5...106.5
1000H.: (100.5...108.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 60.0...62.0
1000H.: (57.0...65.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.20
Speed 1/min : 1360...1370

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 100.0...120.0
1000H.: (96.0...124.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 7.90...8.10
Del.quantity cm³/ : 19.0...23.0
1000H.: (16.5...25.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 I
 Edition : 06.11.87
 Superceeded : 24.7.87
 Calibrating oil : ISO-4113

Combination no. : 9 400 087 356

Injection pump
 Pump designation : PES6P100A720LSS11
 EP type number : 9 400 087 059
 Governor
 Governor design. : RQV350/840...900PA
 839
 Governer no. : 9 420 080 233

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3306 DIT

1st version kW : 207.0
 Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY
 Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 900

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 18.2...18.4

100H.: (18.0...18.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm3/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 0.50...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.40...2.60

3rd speed 1/min: 750

Sleeve travel mm: 2.40...2.60

4th speed 1/min: 850

Sleeve travel mm: 4.00...4.50

5th speed 1/min: 950

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 925

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm³/ : 182.5...184.5
1000H.: (180.0...187.0)

| Generator

Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 57...65

Testing:
1st c-rod trav.mm : 11.60
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 930...960
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 350
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 770...830

SWITCH-OVER POINT

Speed 1/min : 290 (310)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.60
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 195.0...215.0
1000H.: (191.0...219.0)
Contr.-rod trav.mm: 14.00...15.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.70...4.90

Remarks:
APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 F

Edition : 24.07.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 9 400 087 358

Injection pump

Pump designation : PES4P100A720LSS10

EP type number : 9 400 087 058

Governor

Governor design. : RQV350/840...900PA
839

Governer no. : 9 420 080 233

Customer-spec. information

Customer : CATERPILLAR

Engine : 3304 DIT

1st version kW : 149.0

Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270

Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 20.3...20.5

100H.: (20.0...20.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm3/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 950

Sleeve travel mm: 8.50...8.60

2nd speed 1/min: 350

Sleeve travel mm: 0.50...1.50

3rd speed 1/min: 500

Sleeve travel mm: 2.40...2.60

4th speed 1/min: 750

Sleeve travel mm: 2.40...2.60

5th speed 1/min: 850

Sleeve travel mm: 4.00...4.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 925

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm³/ : 203.0...205.0
1000H.: (200.5...207.5)
Dispersion cm³/ : 3.50
1000H.: (6.00)

| Generator

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 58...66

Testing:
1st c-rod trav.mm : 12.70
Speed 1/min : 910...920
2nd c-rod trav.mm : 4.00
Speed 1/min : 940...970
4th speed 1/min : 1050
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.00
Speed 1/min : 350
C-rod trav.mm : 4.70...4.90
C-rod trav.mm : 2.00
Speed 1/min : 770...830

SWITCH-OVER POINT

Speed 1/min : 290 (310)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.70
Speed 1/min : 910...920

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 195.0...215.0
1000H.: (191.0...219.0)
Contr.-rod trav.mm: 14.00...15.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.70...4.90

Remarks:

APPLICATION :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7.0 E

Edition : 5.11.87

Superceded : 17.11.86

Calibrating oil : ISO-4113

Combination no. : 9 400 087 362

Injection pump

Pump designation : PES4P100A720LS501

EP type number : 9 400 087 051

Governor

Governor design. : RQV350...1100PA828

Governor no. : 9 420 080 232

Customer-spec. information

Customer : CATERPILLAR

Engine : 3304 DIT

1st version kW : 81.3

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.0

Calibrating nozzle-holder
assembly : 1 688 901 017Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 1.50...2.50

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-3-4-2

SD ang. spacing°CS: 0-90-180-270

Tolerance + - " : 0.5(0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm3/ : 13.0...13.2

100H.: (12.8...13.4)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350

Contr.-rod trav. m: 6.40...6.60

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.35

100H.: (0.55)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.90...3.20

3rd speed 1/min: 700

Sleeve travel mm: 4.50...4.80

4th speed 1/min: 900

Sleeve travel mm: 6.00...6.20

5th speed 1/min: 1150

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod trav.mmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 600

Del. quantity cm³/ : 130.0...132.0
1000H.: (128.0...134.0)
Dispersion cm³/ : 3.5
1000H.: (6.0)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 9.80
Speed 1/min : 1140...1150
2nd c-rod trav.mm : 4.00
Speed 1/min : 1210...1240
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.00
Speed 1/min : 350
C-rod trav.mm : 5.10...5.30
C-rod trav.mm : 2.00
Speed 1/min : 530...590

Adjustment test, manifold-pressure
compensator (LDA, ADA, ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.80...9.00
2nd pressure hPa : 310
C-rod trav.mm : 10.40...10.50
3rd pressure hPa : 210
C-rod trav.mm : 9.30...9.50

SWITCH-OVER POINT

Speed 1/min : 270(310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600

Speed 1/min : 700
Del. quantity cm³/ : 123.0...127.0
1000H.: (121.0...129.0)
Dispersion cm³/ : 5.0
1000H.: (7.0)
Charge press. hPa : -
Speed 1/min : 1100
Del. quantity cm³/ : 90.0...92.0
1000H.: (88.0...94.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.80
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.0...21.0

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10.5 G2
Edition : 12.11.87
Superceeded : 3.12.86
Calibrating oil : ISO-4113

Combination no. : 9 400 087 363

Injection pump
Pump designation : PES6P100A720LS502
EP type number : 9 400 087 050
Governor
Governor design. : RQV350...1100PA828
Governor no. : 9 420 080 232

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DITA

1st version kW : 173.7
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1100

Contr.-rod trav.mm: 12.40...12.50

Del.quantity cm³/ : 14.7...14.9

100H.: (14.4...15.1)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm³/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.90...3.20

3rd speed 1/min: 700

Sleeve travel mm: 4.50...4.80

4th speed 1/min: 900

Sleeve travel mm: 6.00...6.20

5th speed 1/min: 1150

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del.quantity cm³/ : 147.0...149.0
1000H.: (144.5...151.5)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 63...71

Testing:

1st c-rod trav.mm : 11.40

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 350

C-rod trav.mm : 5.10...5.30

C-rod trav.mm : 2.00

Speed 1/min : 530...590

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 500

Contr.-rod trav.mm: 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.90...10.00

2nd pressure hPa : 300

C-rod trav.mm : 11.70...11.80

3rd pressure hPa : 200

C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 500
Speed 1/min : 700
Del.quantity cm³/ : 149.0...153.0
1000H.: (147.0...155.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)
Charge press. hPa : -
Speed 1/min : 1100
Del.quantity cm³/ : 108.0...110.0
1000H.: (105.5...112.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.40
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.00...5.20

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10_5 G3
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 364

Injection pump
Pump designation : PES6P100A720LSS02
EP type number : 9 400 087 050
Governor
Governor design. : RQV350...1100PA828-1
Governor no. : 9 420 080 235

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DITA

1st version kW : 191.6
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,7

Test inj. tubing : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1100

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm³/ : 15.3...15.5

100H.: (15.1...15.7)

Dispersion cm³/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.6

Del.quantity cm³/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 500

Sleeve travel mm: 2.90...3.20

3rd speed 1/min: 700

Sleeve travel mm: 4.60...4.80

4th speed 1/min: 900

Sleeve travel mm: 6.00...6.20

5th speed 1/min: 1150

Sleeve travel mm: 8.50...8.60

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod trav.mmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 600

I Del.quantity cm³/ : 153.0...155.0
1000H.: (151.0...157.0)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 62...70

Testing:

1st c-rod trav.mm : 11.90

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1250...1280

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...17

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 350

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 500...560

CONSTANT REGULATION

Speed 1/min : 370...440

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 600

Contr.-rod trav.mm: 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.90...10.00

2nd pressure hPa : 340

C-rod trav.mm : 12.00...12.10

3rd pressure hPa : 200

C-rod trav.mm : 10.60...10.80

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 700
Del.quantity cm³/ : 159.0...163.0
1000H.: (157.0...165.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)
Speed 1/min : 1100
Del.quantity cm³/ : 108.0...110.0
1000H.: (105.5...112.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1140...1150

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 157.0...177.0
1000H.: (153.0...181.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.00...5.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10.0 Q9
Edition : 24.07.87
Superceeded : 21.5.87
Calibrating oil : ISO-4113

Combination no. : 9 400 087 368

Injection pump
Pump designation : PE6P110A320RS3108V
EP type number : 0 411 816 737
Governor
Governor design. : RQV250...1100PA589-1
Governor no. : 9 420 080 166

Customer-spec. information

Customer : VOLVO

Engine : THD 101 FD

1st version kW : 210.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1~ 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm³/ : 18.0...18.2

100H.: (17.7...18.5)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm³/ : 3.0...3.6

100H.: (2.7...3.6)

Dispersion cm³/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm³/ : 180.0...182.0

1000H.: (177.0...185.0)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 61...69

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1160...1170

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.80

Speed 1/min : 250

C-rod trav.mm : 5.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 345...405

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1200

Contr.-rod trav.mm: 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.60...9.80

2nd pressure hPa : 300

C-rod trav.mm : 10.00...10.10

3rd pressure hPa : -

C-rod trav.mm : 10.30...13.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm³/ : 106.0...108.0

1000H.: (103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.70
Speed 1/min : 1160...1170

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 160.0...190.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm³/ : 30.0...34.0
1000H.: (27.5...36.5)
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10.0Q10
 Edition : 12.11.87
 Superceeded : 21.5.87
 Calibrating oil : ISO-4113

Combination no. : 9 400 087 369

Injection pump
 Pump designation : PE6P110A320RS3108Z
 EP type number : 0 411 816 728
 Governor
 Governor design. : RQV250...1100PAS89-1
 Governer no. : 9 420 080 166

Customer-spec. information

Customer : VOLVO

Engine : THD 101 GB

1st version kW : 160.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700
 Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 12.2...12.4
 100H.: (11.9...12.7)

Dispersion cm3/ : 0.4
 100H.: (0.7)

2nd speed 1/min: 250.0
 Contr.-rod trav. m: 5.3...5.5
 Del.quantity cm3/ : 3.0...3.4
 Dispersion cm3/ : 0.3
 100H.: (0.6)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250
 Sleeve travel mm: 1.10...1.30
 2nd speed 1/min: 500
 Sleeve travel mm: 4.10...4.90
 3rd speed 1/min: 700
 Sleeve travel mm: 6.30...6.70
 4th speed 1/min: 950
 Sleeve travel mm: 6.30...6.70
 5th speed 1/min: 1100
 Sleeve travel mm: 7.00...7.50

SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed 1/min: 1175
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700
 Charge press. hPa : 750
 Del.quantity cm3/ : 122.0...124.0
 1000H.: (119.0...127.0)
 Dispersion cm3/ : 4.00
 1000H.: (7.50)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:

1st c-rod trav.mm : 9.50
Speed 1/min : 1160...1170
2nd c-rod trav.mm : 4.00
Speed 1/min : 1225...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 7...15
Contr.-rod trav.mm: 5.4

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.80
Speed 1/min : 250
C-rod trav.mm : 5.30...5.50
C-rod trav.mm : 2.00
Speed 1/min : 350...410

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 750
Contr.-rod trav.mm: 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.60...9.80
2nd pressure hPa : 265
C-rod trav.mm : 9.90...10.00
3rd pressure hPa : 311
C-rod trav.mm : 10.20...10.40

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del. quantity cm³/ : 105.5...108.5
1000H.: (103.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

J02

1mm control-rod travel less than

full-load trav.mm: 9.50
Speed 1/min : 1160...1170

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 160.0...190.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 5.30...5.50
Del. quantity cm³/ : 30.0...34.0
1000H.: (-)
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 I

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 087 375

Injection pump

Pump designation : PES6P110A720RS3194

EP type number : 9 400 087 055

Governor

Governor design. : RQV350...1300PA863-5

Governor no. : 9 420 080 240

Customer-spec. information

Customer : FORD FNH

Engine : 6.6 LTC

1st version kW : 126.0

Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.05...4.15
: 4.00...4.20

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00

& c-rod trav max. : 21.00

Difference " CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 14.60...14.70

Del.quantity cm3/ : 11.7...11.9

100H.: (11.5...12.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.6...8.8

Del.quantity cm3/ : 2.0...2.4

100H.: (1.7...2.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1400

Sleeve travel mm: 8.60...8.70

2nd speed 1/min: 1000

Sleeve travel mm: 5.70...6.10

3rd speed 1/min: 800

Sleeve travel mm: 4.80...5.20

4th speed 1/min: 500

Sleeve travel mm: 3.10...3.50

5th speed 1/min: 350

Sleeve travel mm: 1.60...2.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1540

Cont.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 800

Del.quantity cm³/ 1000H.: 117.0...119.0
1000H.: (115.0...121.0)

Dispersion cm³/ 1000H.: 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Testing:

1st c-rod trav.mm : 13.60
Speed 1/min : 1360...1370

2nd c-rod trav.mm : 4.00

Speed 1/min : 1520...1550

4th speed 1/min : 1650

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Testing:

Speed 1/min : 100

C-rod trav.mm min : 12.00

Speed 1/min : 350

C-rod trav.mm : 8.60...8.80

C-rod trav.mm : 2.00

Speed 1/min : 535...595

CONSTANT REGULATION

Speed 1/min : 430...500

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 800

Contr.-rod trav.mm: 14.60...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.60...12.70

2nd pressure hPa : 580

C-rod trav.mm : 13.40...13.60

3rd pressure hPa : 620

C-rod trav.mm : 14.00...14.10

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800

Speed 1/min : 900

Del.quantity cm³/ 1000H.: 100.5...104.5

1000H.: (98.5...106.5)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ 1000H.: 57.0...59.0

1000H.: (55.0...61.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.60

Speed 1/min : 1360...1370

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ 1000H.: 120.0...140.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 8.60...8.80

Del.quantity cm³/ 1000H.: 20.0...24.0

1000H.: (17.5...26.5)

Dispersion cm³/ 1000H.: 3.50

1000H.: (5.50)

Remarks:

:

I BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 376

Injection pump
Pump designation : PES6P110A720RS3193
EP type number : 9 400 087 057
Governor
Governor design. : RSV650...1250P8A528
Governor no. : 9 420 082 323

Customer-spec. information
Customer : FORD FNH

Engine : 7.8 L

1st version kW : 140.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 214

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.30)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + -^b : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm³/ : 13.2...13.4
100H.: (13.0...13.6)

Dispersion cm³/ : 0.5
100H.: (0.9)

2nd speed 1/min: 650.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm³/ : 0.8...1.2
100H.: (0.5...1.5)

Dispersion cm³/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : 3.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Del.quantity cm³/ : 132.0...134.0
1000H.: (130.0...136.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57

Testing:
1st c-rod trav.mm : 12.20
Speed 1/min : 1260...1270

2nd c-rod trav.mm : 4.00
Speed 1/min : 1300...1320
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 770...830

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 800
Del.quantity cm³/ : 110.0...114.0
1000H.: (108.0...116.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.20
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 135.0...155.0
1000H.: (131.0...159.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650
Contr.-rod trav.mm: 5.90...6.10
Del.quantity cm³/ : 8.0...12.0
1000H.: (5.5...15.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C 1

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 087 377

Injection pump

Pump designation : PES6P110A720RS3193

EP type number : 9 400 087 057

Governor

Governor design. : RSV650...1250P8A530-
1

Governer no. : 9 420 082 324

Customer-spec. information

Customer : FORD - FNH

Engine : 7.8 l

1st version kW : 165.0

Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35

: (4.20...4.40)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing °CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00

& c-rod trav max. : 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 14.00...14.10

Del.quantity cm3/ : 13.7...13.9

100H.: (13.5...14.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 1.1...1.5

100H.: (0.8...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Charge press. hPa : 1000

Del.quantity cm3/ : 137.0...139.0

1000H.: (135.0...141.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...57

Testing:
1st c-rod trav.mm : 13.00
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1305...1325
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 23...31
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 5.5

Testing:
Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 770...830

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 14.00...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.40...10.50
2nd pressure hPa : 600
C-rod trav.mm : 13.40...13.50
3rd pressure hPa : 350
C-rod trav.mm : 11.60...11.80

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000
Speed 1/min : 800
Del.quantity cm³/ 1000H.: 117.5...119.5
1000H.: (115.5...121.5)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ 1000H.: 52.0...54.0
1000H.: (50.0...56.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.00
Speed 1/min : 1260...1270

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 135.0...155.0
1000H.: (131.0...159.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650
Contr.-rod trav.mm: 5.90...6.10
Del.quantity cm³/ 1000H.: 11.0...15.0
1000H.: (8.5...17.5)
Dispersion cm³/ 1000H.: 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 C 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 378

Injection pump
Pump designation : PES6P110A720RS3193
EP type number : 9 400 087 057
Governor
Governor design. : RSV650...1250P8A530
Governor no. : 9 420 082 325

Customer-spec. information
Customer : FORD -FNH

Engine : 7.8 l

1st version kW : 180.0
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + -^o : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 14.60...14.70

Del.quantity cm³/ : 15.5...15.7

100H.: (15.3...15.9)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm³/ : 1.1...1.5
100H.: (0.8...1.7)
Dispersion cm³/ : 0.3
100H.: (0.5)

SLEEVE POSITION

Control-lever position
Degree: -3
Speed 1/min: 800
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload
Notch setting x : 3.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 1000
Del.quantity cm³/ : 155.0...157.0
1000H.: (153.0...159.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 48...56

Testing:
1st c-rod trav.mm : 13.60
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1305...1325
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.70

LOWEST RATED SPEED I

Control-lever
position degrees: 22...30
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 5.5

Testing:
Speed 1/min : 600
C-rod trav.mm min : 10.00
Speed 1/min : 650
C-rod trav.mm : 5.90...6.10
C-rod trav.mm : 2.00
Speed 1/min : 770...830

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 14.60...14.70

Measurement
Speed 1/min : 500
1st pressure hPa : -
C-rod trav.mm : 11.50...11.60
2nd pressure hPa : 600
C-rod trav.mm : 14.00...14.10
3rd pressure hPa : 350
C-rod trav.mm : 12.40...12.60

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1000
Speed 1/min : 800
Del.quantity cm³/ : 131.0...135.0
1000H.: (129.0...137.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 66.0...68.0
1000H.: (64.0...70.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.60
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 135.0...155.0
1000H.: (131.0...159.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 650
Contr.-rod trav.mm: 5.90...6.10
Del.quantity cm³/ : 11.0...15.0
1000H.: (8.5...17.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 D
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 379

Injection pump
Pump designation : PES6P110A720RS3150
EP type number : 9 400 087 046
Governor
Governor design. : RQV350...1200PA863
Governor no. : 9 420 080 242

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 138.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference⁰ CS : 2.00...3.00

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm³/ : 12.7...12.9
100H.: (12.5...13.1)

Dispersion cm³/ : 0.5
100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm³/ : 2.3...2.7
100H.: (2.0...2.9)
Dispersion cm³/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1300
Sleeve travel mm: 8.40...8.50
2nd speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 500
Sleeve travel mm: 3.10...3.50
5th speed 1/min: 350
Sleeve travel mm: 1.60...2.30

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Cont.-rod travel mm: 8.00...0.00

I FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm³/ : 127.5...129.5
1000H.: (125.5...131.5)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 12.00
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1385...1415
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 8.1

Testing:
Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 13.00...13.10
2nd speed 1/min : 750
C-rod trav.mm : 13.80...13.90
4th speed 1/min : 975
C-rod trav.mm : 13.40...13.50

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.20...12.30
2nd pressure hPa : 267
C-rod trav.mm : 12.60...12.70
3rd pressure hPa : 335
C-rod trav.mm : 13.30...13.50

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm³/ 1000H. : 115.0...119.0
1000H. : (113.0...121.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ 1000H. : 74.5...76.5
1000H. : (72.5...78.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.00
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H. : 140.0...160.0
1000H. : (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm³/ 1000H. : 23.0...27.0
1000H. : (20.5...29.5)
Dispersion cm³/ 1000H. : 3.50
1000H. : (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 380

Injection pump
Pump designation : PES6P110A720RS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-1
Governor no. : 9 420 080 243

Customer-spec. information

Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 157.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 4.25...4.35 : (4.20...4.40)	FULL-LOAD DELIV. AT FULL-LOAD STOP
Contr.-rod trav.mm:	9.00...12.00	1st version
Cam sequence	: 1- 5- 3- 6- 2- 4	Speed 1/min: 1200 Charge press. hPa : 600 Del.quantity cm ³ / : 132.0...134.0 1000H.: (130.0...136.0)
SD ang. spacing ^o CS:	0-60-120-180-240-300	Dispersion cm ³ / : 5.00 1000H.: (9.00)
Tolerance + - ^o	: 0.50 (0.75)	
SD mark cyl. no.	: 1	HIGHEST RATED SPEED
START OF DELIVERY DIFFERENCE		1st version
betw.c-rod trav.mm:	9.00...12.00	Control-lever
& c-rod trav. max.	: 21.00	position degrees: 43...51
Difference ^o CS	: 2.00...3.00	
BASIC SETTING		Testing:
1st speed 1/min:	1200	1st c-rod trav.mm : 12.30 Speed 1/min : 1260...1270
Contr.-rod trav.mm:	13.30...13.40	2nd c-rod trav.mm : 4.00 Speed 1/min : 1390...1420
Del.quantity cm ³ /	: 13.2...13.4	4th speed 1/min : 1520 C-rod trav.mm : 0.00...1.00
	100H.: (13.0...13.6)	
Dispersion cm ³ /	: 0.5	LOWEST RATED SPEED I
		Control-lever
	100H.: (0.9)	position degrees: 13...21
2nd speed 1/min:	350.0	
Contr.-rod trav. m:	8.0...8.2	Testing:
Del.quantity cm ³ /	: 2.6...3.0	Speed 1/min : 100 C-rod trav.mm min : 12.00
		Speed 1/min : 350 C-rod trav.mm : 8.00...8.20
	100H.: (2.3...3.2)	C-rod trav.mm : 2.00 Speed 1/min : 495...555
Dispersion cm ³ /	: 0.3	
	100H.: (0.5)	CONSTANT REGULATION
(B) Setting of injection pump with externally-mounted governor		Speed 1/min : 390...460
SLEEVE TRAVELS		
1st speed 1/min:	350	TORQUE CONTROL
Sleeve travel mm:	1.60...2.30	Torque-control curve - 1st version
2nd speed 1/min:	500	1st speed 1/min : 1200 C-rod trav.mm : 12.30...12.40
Sleeve travel mm:	3.10...3.50	2nd speed 1/min : 750 C-rod trav.mm : 14.00...14.10
3rd speed 1/min:	800	4th speed 1/min : 975 C-rod trav.mm : 13.80...13.90
Sleeve travel mm:	4.90...5.30	
4th speed 1/min:	1000	Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)
Sleeve travel mm:	6.00...6.40	
5th speed 1/min:	1300	
Sleeve travel mm:	8.40...8.50	
SLEEVE POSITION		
Control-lever position		1st version
Degree:	-1	Setting
Speed 1/min:	1440	Speed 1/min : 500 Pressure hPa : 600
Cont.-rod travelmm:	8.00...0.00	Contr.-rod trav.mm: 14.00...14.10
		Measurement
		Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.90...12.00
2nd pressure hPa : 420
C-rod trav.mm : 12.50...12.60
3rd pressure hPa : 505
C-rod trav.mm : 13.40...13.60

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm³/ : 116.0...120.0
1000H.: (114.0...122.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 70.0...72.0
1000H.: (68.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.30
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 150.0...170.0
1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm³/ : 26.0...30.0
1000H.: (23.5...32.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 D 1
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 381

Injection pump
Pump designation : PES6P110A720RS3150
EP type number : 9 400 087 046
Governor
Governor design. : RQV350...1200PA863-3
Governor no. : 9 420 080 244

Customer-spec. information

Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 160,0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav. max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm³/ : 12.5...12.7
100H.: (12.3...12.9)

Dispersion cm³/ : 0.5
100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm³/ : 2.3...2.7
100H.: (2.1...2.9)
Dispersion cm³/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Cont.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200
Charge press. hPa : 600
Del.quantity cm³/ : 125.5...127.5
1000H.: (123.5...129.5)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Testing:

1st c-rod trav.mm : 11.90
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1380...1410
4th speed 1/min : 1500
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:

Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 750
C-rod trav.mm : 14.00...14.10
4th speed 1/min : 975
C-rod trav.mm : 13.50...13.60

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.90...13.00
2nd pressure hPa : 333
C-rod trav.mm : 13.20...13.30
3rd pressure hPa : 380
C-rod trav.mm : 13.70...13.90

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 750
Del.quantity cm³/ 1000H. : 117.0...121.0
1000H. : (115.0...123.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ 1000H. : 84.0...86.0
1000H. : (82.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H. : 150.0...170.0
1000H. : (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm³/ 1000H. : 23.0...27.0
1000H. : (21.0...29.0)
Dispersion cm³/ 1000H. : 3.50
1000H. : (5.50)

Remarks:
:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E 1
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 382

Injection pump
Pump designation : PES6P110A720RS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-2
Governor no. : 9 420 080 245

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 160.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-0-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference⁰ CS : 2.00...3.00

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm³/ : 13.6...13.8

100H.: (13.4...14.0)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.0...8.2

Del.quantity cm³/ : 2.4...2.8

100H.: (2.1...3.0)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1

Speed 1/min: 1440

Contr.-rod trav.mmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200
Charge press. hPa: 600
Del.quantity cm³/ : 136.0...138.0
1000H.: (134.0...140.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 43...51

Testing:

1st c-rod trav.mm : 12.70
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1400...1430
4th speed 1/min : 1530
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:

Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 13.70...13.80
2nd speed 1/min : 750
C-rod trav.mm : 14.30...14.40
4th speed 1/min : 975
C-rod trav.mm : 14.10...14.20

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 600
Contr.-rod trav.mm: 14.30...14.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.40...12.50
2nd pressure hPa : 345
C-rod trav.mm : 12.90...13.00
3rd pressure hPa : 420
C-rod trav.mm : 13.60...13.80

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 750
Del. quantity cm³/ 1000H. : 119.0...123.0
1000H. : (117.0...125.0)
Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ 1000H. : 76.5...78.5
1000H. : (74.5...80.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.70
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ 1000H. : 140.0...160.0
1000H. : (-)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del. quantity cm³/ 1000H. : 24.0...28.0
1000H. : (21.5...30.5)
Dispersion cm³/ 1000H. : 3.50
1000H. : (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 E 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 087 383

Injection pump
Pump designation : PES6P110A720RS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA863-4
Governor no. : 9 420 080 246

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8 L TC

1st version kW : 179.0
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00
& c-rod trav max. : 21.00
Difference^o CS : 2.00...3.00

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm³/ : 14.9...15.1
100H.: (14.7...15.3)

Dispersion cm³/ : 0.5
100H.: (0.9)

2nd speed 1/min: 350.0
Contr.-rod trav. m: 8.0...8.2
Del.quantity cm³/ : 2.4...2.8
100H.: (2.1...3.0)

Dispersion cm³/ : 0.3
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 350
Sleeve travel mm: 1.60...2.30
2nd speed 1/min: 500
Sleeve travel mm: 3.10...3.50
3rd speed 1/min: 800
Sleeve travel mm: 4.90...5.30
4th speed 1/min: 1000
Sleeve travel mm: 6.00...6.40
5th speed 1/min: 1300
Sleeve travel mm: 8.40...8.50

SLEEVE POSITION

Control-lever position
Degree: -1
Speed 1/min: 1440
Cont.-rod travelmm: 8.00...0.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 1200
Charge press. hPa : 700
Del.quantity cm³/ : 149.5...151.5
1000H.: (147.5...153.5)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 44...52

Testing:
1st c-rod trav.mm : 13.50
Speed 1/min : 1260...1270
2nd c-rod trav.mm : 4.00
Speed 1/min : 1410...1440
4th speed 1/min : 1520
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21

Testing:
Speed 1/min : 100
C-rod trav.mm min : 12.00
Speed 1/min : 350
C-rod trav.mm : 8.00...8.20
C-rod trav.mm : 2.00
Speed 1/min : 495...555

CONSTANT REGULATION

Speed 1/min : 390...460

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1200
C-rod trav.mm : 14.50...14.60
2nd speed 1/min : 750
C-rod trav.mm : 15.00...15.10
4th speed 1/min : 975
C-rod trav.mm : 14.70...14.80

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 700
Contr.-rod trav.mm: 15.00...15.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 12.10...12.20
2nd pressure hPa : 430
C-rod trav.mm : 13.30...13.40
3rd pressure hPa : 532
C-rod trav.mm : 14.30...14.50

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 750
Del.quantity cm³/ 1000H. : 128.0...132.0
1000H. : (126.0...134.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ 1000H. : 72.0...74.0
1000H. : (70.0...76.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.50
Speed 1/min : 1260...1270

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H. : 140.0...160.0
1000H. : (-)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.00...8.20
Del.quantity cm³/ 1000H. : 24.0...28.0
1000H. : (21.5...30.5)
Dispersion cm³/ 1000H. : 3.50
1000H. : (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff,

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 C 4
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113

Combination no. : 9 400 230 045

Injection pump
Pump designation : PES6A95D410RS2522-1
EP type number : 9 410 230 017
Governor
Governor design. : RSV425...1100A2C2161
L
Governor no. : 9 420 234 140

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 106.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95
: (1.80...2.00)

Contr.-rod trav.mm: 10.50...10.50	LOWEST RATED SPEED I
Cam sequence : 1- 5- 3- 6- 2- 4	Control-lever position degrees: 21...29
SD ang. spacing°CS: 0-60-120-180-240-300	Setting point w/out aux. spring
Tolerance + - : 0.50 (0.75)	Speed 1/min : 425
SD mark cyl. no. : 1	Contr.-rod trav.mm: 5.1
BASIC SETTING	Testing:
1st speed 1/min: 1100	Speed 1/min : 100
Contr.-rod trav.mm: 9.00...9.10	C-rod trav.mm min : 19.00
Del.quantity cm ³ / : 8.6...8.8	Speed 1/min : 425
100H.: (8.4...9.0)	C-rod trav.mm : 5.50...5.70
Dispersion cm ³ / : 0.3	C-rod trav.mm : 2.00
100H.: (0.6)	Speed 1/min : 590...650
2nd speed 1/min: 425.0	TORQUE CONTROL
Contr.-rod trav. m: 5.5...5.7	Torque-control curve - 1st version
Del.quantity cm ³ / : 1.8...2.2	1st speed 1/min : 1100
100H.: (1.5...2.4)	C-rod trav.mm : 9.00...9.10
Dispersion cm ³ / : 0.3	2nd speed 1/min : 650
100H.: (0.5)	C-rod trav.mm : 10.40...10.60
SLEEVE POSITION	Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)
Control-lever position	1st version
Degree: -3	Setting
Speed 1/min: 800	Speed 1/min : 500
Cont.-rod travellmm: 0.30...0.70	Pressure hPa : -
FULL-LOAD DELIV. AT FULL-LOAD STOP	Contr.-rod trav.mm: 10.20...10.40
1st version	Measurement
Speed 1/min: 1100	Speed 1/min : 500
Charge press. hPa : 500	1st pressure hPa : 100
Del.quantity cm ³ / : 86.5...88.5	C-rod trav.mm : 10.30...10.40
1000H.: (84.0...90.0)	2nd pressure hPa : 149
Dispersion cm ³ / : 3.50	C-rod trav.mm : 10.40...10.60
1000H.: (6.00)	FUEL-DELIVERY CHARACTERISTICS
HIGHEST RATED SPEED	1st version
1st version	Charge press. hPa : 500
Control-lever	Speed 1/min : 650
position degrees: 46...54	Del.quantity cm ³ / : 102.5...105.5
Testing:	1000H.: (100.0...108.0)
1st c-rod trav.mm : 8.00	Charge press. hPa : -
Speed 1/min : 1145...1155	Speed 1/min : 500
2nd c-rod trav.mm : 4.00	Del.quantity cm ³ / : -
Speed 1/min : 1185...1195	1000H.: (87.0...95.0)
4th speed 1/min : 1300	ROTATIONAL-SPEED LIMITATION
C-rod trav.mm : 0.30...1.40	1st version

1mm control-rod travel less than

full-load trav.mm: 8.00

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 155.0...175.0

1000H.: (150.0...180.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1180

Contr.-rod trav.mm: 5.30...5.50

LOW IDLE

Speed 1/min : 425

Contr.-rod trav.mm: 5.50...5.70

Del.quantity cm³/ : 18.0...22.0

1000H.: (15.5...24.5)

Dispersion cm³/ : 3.50

1000H.: (5.50)

Remarks:

: JOHN DEERE

Setting without torque-control spring
retainer with 1 mm control-rod travel
less. Raising of full-load delivery
with torque-control spring retainer to
9,0 mm control-rod travel.

Start-of-delivery mark 16° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H 6

Edition : 06.11.87

Superceeded : 7.86

Calibrating oil : ISO-4113

Combination no. : 9 400 230 070

Injection pump

Pump designation : PES6A100D410RS2676-1

EP type number : 9 410 230 024

Governor

Governor design. : RSV400...950A1C2186-
2L

Governer no. : 9 420 234 150

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466T

1st version kW : 102.0

Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 001

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses

Set constant delivery quant.

per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 9.7...9.9

100H.: (9.5...10.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 400.0

Contr.-rod trav. m: 6.5...6.7

Del.quantity cm3/ : 1.8...2.2

100H.: (1.5...2.4)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travlmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm3/ : 97.0...99.0

1000H.: (95.0...101.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 47...55

Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 995...1005

2nd c-rod trav.mm : 4.00

Speed 1/min : 1045...1055

3rd c-rod trav.mm : 4.00

Speed 1/min : 1050...1080

4th speed 1/min : 1150

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 22...30

Setting point w/out aux. spring

Speed 1/min : 400

Contr.-rod trav.mm: 6.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 400

C-rod trav.mm : 6.50...6.70

C-rod trav.mm : 2.00

Speed 1/min : 535...595

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 950

C-rod trav.mm : 10.50...10.60

2nd speed 1/min : 650

C-rod trav.mm : 11.90...12.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 650

Del.quantity cm³/ : 115.0...118.0

1000H.: (112.5...120.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50

Speed 1/min : 995...1005

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 19.8...21.2

1000H.: (19.5...21.5)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 400

Contr.-rod trav.mm: 6.50...6.70

Del.quantity cm³/ : 18.0...22.0

1000H.: (15.5...24.5)

Dispersion cm³/ : 3.50

1000H.: (5.50)

Remarks:

:

K04

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 5,9 A

Edition : 06.11.87

Superceded :

Calibrating oil : ISO-4113

Combination no. : 9 400 230 104

Injection pump

Pump designation : PES6A95D320RS2724

EP type number : 9 410 230 029

Governor

Governor design. : RQV350...1350AB1224R

Governor no. : 9 420 231 016

Customer-spec. information

Customer : NAVISTAR

Engine : MARS DT 360

1st version kW : 123.0

Speed 1/min: 2700

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 025Opening
pressure, bar : 172...175Perforated-plate
diameter mm : 0,5

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm	:	2.75...2.85
	:	(2.70...2.90)
Contr.-rod trav.mm	:	10.50...10.50
Cam sequence	:	1- 5- 3- 6- 2- 4

SD ang. spacing°CS	:	0-60-120-180-240-300
Tolerance + -	:	0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1350

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm³/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm³/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1400

Sleeve travel mm: 8.50...8.50

2nd speed 1/min: 1500

Sleeve travel mm: 9.30...9.50

3rd speed 1/min: 350

Sleeve travel mm: 1.00...1.00

4th speed 1/min: 450

Sleeve travel mm: 1.90...2.40

5th speed 1/min: 250

Sleeve travel mm: 0.10...0.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1550

Cont.-rod travel mm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1350

Charge press. hPa : 900

Del.quantity cm³/ : 75.5...77.5
1000H.: (73.5...79.5)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...55

Testing:
1st c-rod trav.mm : 10.50
Speed 1/min : 1390...1420
2nd c-rod trav.mm : 4.00
Speed 1/min : 1505...1515
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 5.30...5.50
Speed 1/min : 250
C-rod trav.mm max : 7.80

CONSTANT REGULATION
Speed 1/min : 350...500

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 9.10...9.30

Measurement
Speed 1/min : 500

1st pressure hPa : 466
C-rod trav.mm : 10.40...10.80
2nd pressure hPa : 227
C-rod trav.mm : 9.60...9.70
3rd pressure hPa : 900
C-rod trav.mm : 11.00...11.30

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500

Del.quantity cm³/ : -
1000H.: (66.0...74.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.50
Speed 1/min : 1390...1420

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 15.0...15.0
1000H.: (14.5...14.5)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm³/ : 15.0...19.0
1000H.: (12.5...21.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:
Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 5,9 A 1
Edition : 06.11.87Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 9 400 230 105

Injection pump
Pump designation : PES6A95D320RS2724

EP type number : 9 410 230 029

Governor

Governor design. : RQV350...1350AB1221R

Governer no. : 9 420 231 017

Customer-spec. information
Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 134.0
Speed 1/min: 2700

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Calibrating nozzle-holder
assembly : 1 688 901 025Opening
pressure, bar : 172...175Perforated-plate
diameter mm : 0,5

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.35X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1350

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm3/ : 8.0...8.2

100H.: (7.8...8.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1400

Sleeve travel mm: 8.50...8.50

2nd speed 1/min: 1500

Sleeve travel mm: 9.30...9.50

3rd speed 1/min: 350

Sleeve travel mm: 1.00...1.00

4th speed 1/min: 450

Sleeve travel mm: 1.90...2.40

5th speed 1/min: 250

Sleeve travel mm: 0.10...0.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1550

Cont.-rod trav.mmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1350

Charge press. hPa : 900

Del.quantity cm³/ : 80.0...82.0
1000H.: (78.0...84.0)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 49...55

Testing:
1st c-rod trav.mm : 10.50
Speed 1/min : 1395...1425
2nd c-rod trav.mm : 4.00
Speed 1/min : 1525...1535
4th speed 1/min : 1600
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 5.30...5.50
C-rod trav.mm : 2.00
Speed 1/min : 420...480
Speed 1/min : 250
C-rod trav.mm max : 7.80

CONSTANT REGULATION
Speed 1/min : 350...500

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 9.90...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : 339
C-rod trav.mm : 10.90...11.30
2nd pressure hPa : 157
C-rod trav.mm : 10.30...10.40

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500

Del.quantity cm³/ : -
1000H.: (74.0...82.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.50
Speed 1/min : 1395...1425

MIDDLE RATED SPEED
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 150.0...150.0
1000H.: (145.0...145.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 5.30...5.50
Del.quantity cm³/ : 15.0...19.0
1000H.: (12.5...21.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

: NAVISTAR #
: 1 810 221 C92
Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 B 3

Edition : 06.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 9 400 230 107

Injection pump

Pump designation : PES6A100D320/3RS2691
-2

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1200AB1233R

Governor no. : 9 420 231 018

Customer-spec. information

Customer : C.D.C

Engine : 6CT830

1st version kW : 157.0

Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 017Opening
pressure, bar : 172...175Perforated-plate
diameter mm : 0,6

Test inj. tubing : 9 681 271 029

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1200

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm³/ : 11.3...11.5

100H.: (11.1...11.7)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.6...4.8

Del.quantity cm³/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm³/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 0.00...0.20

2nd speed 1/min: 350

Sleeve travel mm: 1.00...1.50

3rd speed 1/min: 450

Sleeve travel mm: 1.90...2.40

4th speed 1/min: 1200

Sleeve travel mm: 6.90...6.90

5th speed 1/min: 1350

Sleeve travel mm: 8.15...8.65

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1435

Cont.-rod travellmm: 6.70...9.30

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Charge press. hPa : 500

Del.quantity cm³/ : 113.0...115.0
1000H.: (111.0...117.0)
Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 40...46

Testing:
1st c-rod trav.mm : 9.80
Speed 1/min : 1240...1250
2nd c-rod trav.mm : 4.00
Speed 1/min : 1315...1345
4th speed 1/min : 1400
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 9...15
Speed 1/min : 350
C-rod trav.mm : 4.60...4.80
C-rod trav.mm : 2.00
Speed 1/min : 480...540

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 240
Contr.-rod trav.mm: 9.70...9.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.30...9.50
2nd pressure hPa : 333
C-rod trav.mm : 10.20...10.60
3rd pressure hPa : 500
C-rod trav.mm : 10.70...11.00

SWITCH-OVER POINT

Speed 1/min : 290 (300)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : -
1000H.: (82.5...90.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.80
Speed 1/min : 1240...1250

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 150.0...170.0
1000H.: (145.0...175.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 4.60...4.80
Del.quantity cm³/ : 16.0...20.0
1000H.: (13.5...22.5)
Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks: : C.D.C. # 390558

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9,6 N 1
 Edition : 07.12.87
 Superceded : 12.9.86
 Calibrating oil : ISO-4113

Combination no. : 0 400 646 266

Injection pump
 Pump designation : PE6A95D410LS2587
 EP type number : 0 410 696 983
 Governor
 Governor design. : RQV300...1150AB1088L
 Governer no. : 0 420 212 115

Customer-spec. information

Customer : KHD

Engine : F6L413 FW

1st version kW : 106.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 6- 5- 4- 3- 2

SD ang. spacing°CS: 0-75-120-195-240-315
 Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 8.30...8.40

Del.quantity cm3/ : 7.2...7.4

100H.: (7.0...7.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100H.: (0.6...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 400

Sleeve travel mm: 2.30...2.70

3rd speed 1/min: 600

Sleeve travel mm: 3.00...3.50

4th speed 1/min: 1195

Sleeve travel mm: 8.40...8.50

5th speed 1/min: 1235

Sleeve travel mm: 8.90...9.10

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1190

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 72.0...74.0

1000H.: (70.0...76.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 7.30

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1220...1250

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 300

C-rod trav.mm : 6.40...6.60

CONSTANT REGULATION

Speed 1/min : 320...420

TORQUE CONTROL

Dimension a mm : 1.00

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 8.30...8.40

2nd speed 1/min : 500

C-rod trav.mm : 9.30...9.40

3rd speed 1/min : 935

C-rod trav.mm : 9.00...9.20

4th speed 1/min : 1045

C-rod trav.mm : 8.50...8.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 800

Del.quantity cm³/ : 78.0...81.0

1000H.: (75.5...83.5)

Speed 1/min : 800

Del.quantity cm³/ : 98.5...101.5

1000H.: (96.0...104.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 7.30

Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 120.0...130.0

1000H.: (117.0...133.0)

Contr.-rod trav.mm: 14.40...14.80

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

When accelerating from engine speed "0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 15,8 N1

Edition : 07.12.87

Superceeded : 15.5.87

Calibrating oil : ISO-4113

Combination no. : 0 400 649 219

Injection pump

Pump designation : PE10A9SD610/4LS2589

EP type number : 0 410 699 994

Governor

Governor design. : RQV300...1150AB1047D

L

Governer no. : 0 420 214 242

Customer-spec. information

Customer : KHD

Engine : F10L413 FW

1st version KW : 177.0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
: (1.45...1.65)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1-10- 9- 4- 3- 6- 5-
8- 7- 2SD ang. spacing°CS: 0-27-72-99-144-171-
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 9.30...9.40

Del.quantity cm3/ : 6.9...7.1

100H.: (6.7...7.3)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.2...7.4

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 400

Sleeve travel mm: 2.20...2.60

3rd speed 1/min: 600

Sleeve travel mm: 3.00...3.50

4th speed 1/min: 1195

Sleeve travel mm: 8.40...8.50

5th speed 1/min: 1235

Sleeve travel mm: 9.10...9.30

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1190

Cont.-rod travle/mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 69.0...71.0

1000H.: (67.0...73.0)

Dispersion cm³/ : 3.50
1000H.: (6.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 61...69

Testing:
1st c-rod trav.mm : 8.30
Speed 1/min : 1190...1200
2nd c-rod trav.mm : 4.00
Speed 1/min : 1230...1260
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 10...18

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.80
Speed 1/min : 300
C-rod trav.mm : 7.20...7.40

CONSTANT REGULATION

Speed 1/min : 320...430

TORQUE CONTROL

Dimension a mm : 1.00
Torque-control curve - 1st version
1st speed 1/min : 1150
C-rod trav.mm : 9.30...9.40
2nd speed 1/min : 500
C-rod trav.mm : 10.30...10.40
3rd speed 1/min : 935
C-rod trav.mm : 10.00...10.20
4th speed 1/min : 1045
C-rod trav.mm : 9.50...9.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 800
Del.quantity cm³/ : 75.5...78.5
1000H.: (73.0...81.0)
Speed 1/min : 800
Del.quantity cm³/ : 98.5...101.5
1000H.: (96.0...104.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 500

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 8.30
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 120.0...130.0
1000H.: (117.0...133.0)
Contr.-rod trav.mm: 15.40...15.80

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

When accelerating from engine speed "0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 C 5

Edition : 07.12.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 400 876 337

Injection pump

Pump designation : PES6A90D410RS2710

EP type number : 0 410 896 082

Governor

Governor design. : RSV350...1400AOC1135
-2L

Governor no. : 0 420 232 473

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 96.0

Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 6.4...6.5

100H.: (6.2...6.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.8...9.4

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.6)

Dispersion cm3/ : 0.2

100H.: (0.4)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
Notch setting x : 6.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1400

Del.quantity cm3/ : 64.0...65.0

1000H.: (62.0...67.0)

Dispersion cm3/ : 3.00

1000H.: (5.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1435...1440

2nd c-rod trav.mm : 4.00

Speed 1/min : 1475...1488

3rd c-rod trav.mm : 4.00

Speed 1/min : 1515...1545

4th speed 1/min : 1575
C-rod trav.mm : 0.30...1.40
5th speed 1/min : 1440...1450
C-rod trav.mm : 10.00

Del.quantity cm³/ : 10.0...14.0
1000H.: (8.0...16.0)
Dispersion cm³/ : 2.50
1000H.: (4.50)

LOWEST RATED SPEED I

Control-lever
position degrees: -3
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 9.10

Remarks:

:

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 9.00...9.20
C-rod trav.mm : 2.00
Speed 1/min : 470...530

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1400
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 500
C-rod trav.mm : 12.10...12.20
3rd speed 1/min : 750
C-rod trav.mm : 11.80...12.00
4th speed 1/min : 950
C-rod trav.mm : 11.40...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 600
Del.quantity cm³/ : 52.0...54.0
1000H.: (49.5...56.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.00
Speed 1/min : 1435...1440

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 78.0...88.0
1000H.: (75.0...91.0)
Contr.-rod trav.mm: 16.90...17.30

LOW IDLE

Speed 1/min : 350
Contr.-rod trav.mm: 8.80...9.40

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 19,1 0 1
Edition : 07.12.87
Superceeded : 12.9.86
Calibrating oil : ISO-4113

Combination no. : 0 401 840 106

Injection pump
Pump designation : PE12P110A320LS855
EP type number : 0 411 810 046
Governor
Governor design. : RQV350...1150PA493R
Governor no. : 0 421 813 237

CUSTOMER-SPEC. INFORMATION

Customer : DAIMLER-BENZ

Engine : OM 404 A

1st version kW : 386.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30	Del. quantity cm ³ / : 140.0...142.0
: (3.15...3.35)	1000H.: (137.0...145.0)
Contr.-rod trav.mm: 9.00...12.00	Dispersion cm ³ / : 4.00
Cam sequence : 12- 1- 5- 9- 8- 3-	1000H.: (8.00)
4- 11- 10- 2- 6- 7	
SD ang. spacing ⁰ CS: 0-45-60-105-120-165-	HIGHEST RATED SPEED
180-225-240-285-300-	
SD ang. spacing ⁰ CS: 345	1st version
Tolerance + - ⁸ : 0.50 (0.75)	Control-lever position degrees: 62...70
SD mark cyl. no. : 12	Testing:
BASIC SETTING	1st c-rod trav.mm : 12.10
1st speed 1/mi: 1130	Speed 1/min : 1185...1195
Contr.-rod trav.mm: 13.10...13.20	2nd c-rod trav.mm : 4.00
Del. quantity cm ³ / : 14.0...14.2	Speed 1/min : 1295...1325
100H.: (13.7...14.5)	4th speed 1/min : 1450
Dispersion cm ³ / : 0.4	C-rod trav.mm : 0.00...1.00
100H.: (0.8)	
2nd speed 1/min: 350.0	LOWEST RATED SPEED I
Contr.-rod trav. m: 7.5...7.7	Control-lever position degrees: 10...18
Del. quantity cm ³ / : 1.8...2.4	Testing:
100H.: (1.5...2.6)	Speed 1/min : 100
Dispersion cm ³ / : 0.4	C-rod trav.mm min : 8.60
100H.: (0.7)	Speed 1/min : 350
(B) Setting of injection pump with externally-mounted governor	C-rod trav.mm : 7.00...7.20
SLEEVE TRAVELS	C-rod trav.mm : 2.00
1st speed 1/min: 300	Speed 1/min : 690...750
Sleeve travel mm: 0.90...1.20	
2nd speed 1/min: 450	Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)
Sleeve travel mm: 3.00...3.30	
3rd speed 1/min: 1200	1st version
Sleeve travel mm: 8.50...9.00	Setting
4th speed 1/min: 1300	Speed 1/min : 500
Sleeve travel mm: 9.80...10.60	Pressure hPa : -
SLEEVE POSITION	Contr.-rod trav.mm: 12.70...12.90
Control-lever position	Measurement
Degree: -1	Speed 1/min : 500
Speed 1/min: 1180	1st pressure hPa : 395
Cont.-rod travelmm: 15.20...17.80	C-rod trav.mm : 13.00...13.10
FULL-LOAD DELIV. AT FULL-LOAD STOP	SWITCH-OVER POINT
1st version	Speed 1/min : 270 (290)
Speed 1/min: 1130	FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa : 700	

Dispersion cm³/ : 6.00
1000H.: (9.00)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 121.0...123.0
1000H.: (118.5...125.5)
Dispersion cm³/ : 6.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 12.10
Speed 1/min : 1185...1195

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 130.0...150.0
1000H.: (126.0...154.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12.2 A

Edition : 20.11.87

Superceeded : 12.9.86

Calibrating oil : ISO-4113

Combination no. : 0 401 846 826

Injection pump

Pump designation : PE6P120A320RS3178

EP type number : 0 411 826 752

Governor

Governor design. : RQV250...1025PA657-
10

Governor no. : 0 421 813 567

Customer-spec. information

Customer : VOLVO

Engine : TD122FS

1st version kW : 287.0

Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70

: (3.55...3.75)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.00...14.10

Del.quantity cm3/ : 25.2...25.4

100H.: (24.9...25.7)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 4.80...5.10

Del.quantity cm3/ : 1.8...2.3

100H.: (1.5...2.5)

Dispersion cm3/ : 0.5

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1090

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm3/ : 252.0...254.0

1000H.: (249.0...257.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 13.00

Speed 1/min : 1055...1065

2nd c-rod trav.mm : 4.00

Speed 1/min : 1140...1170
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.40
Speed 1/min : 250
C-rod trav.mm : 4.80...5.10

CONSTANT REGULATION

Speed 1/min : 250...400

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 1200
Contr.-rod trav.mm: 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.90...10.10
2nd pressure hPa : 90
C-rod trav.mm : 10.20...10.30
3rd pressure hPa : 870
C-rod trav.mm : 13.60...13.90

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm³/ : 163.0...165.0
1000H.: (160.0...168.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.00
Speed 1/min : 1055...1065

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 230.0...250.0
1000H.: (226.0...254.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250
Del.quantity cm³/ : 18.0...23.0
1000H.: (15.5...25.5)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11.7 D1

Edition : 12.11.87

Superceeded : 9.10.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 831

Injection pump

Pump designation : PE6P120A320RS3183-1Y

EP type number : 0 411 826 765

Governor

Governor design. : RQ250/1000PA832

Governor no. : 0 421 801 368

Customer-spec. information

Customer : DAF

Engine : WS 282

1st version kW : 282.0

Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	:	3.70...3.80
	:	(3.65...3.85)
Contr.-rod trav.mm	:	9.00...12.00
Cam sequence	:	1- 5- 3- 6- 2- 4

SD ang. spacing°CS	:	0-60-120-180-240-300
Tolerance + -"	:	0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm3/ : 21.9...22.1

100H.: (21.6...22.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.6...7.0

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 550

Cont.-rod travelmm: 15.20...16.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm3/ : 219.0...221.0

1000H.: (216.0...224.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 550

Contr.-rod trav.mm: 15.8

Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 1035...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1130...1160

4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

STARTING FUEL DELIVERY

LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed 1/min : 250
Contr.-rod trav.mm: 6.8

Speed 1/min : 100
Del.quantity cm³/ : 260.0...300.0
1000H.: (256.0...304.0)

Testing:
Speed 1/min : 100
C-rod trav.mm min : 8.30
Speed 1/min : 250
C-rod trav.mm : 6.60...7.00
C-rod trav.mm : 2.00
Speed 1/min : 350...390

LOW IDLE
Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm³/ : 14.0...20.0
1000H.: (11.0...23.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 850
C-rod trav.mm : 13.30...13.40
2nd speed 1/min : 1000
C-rod trav.mm : 13.20...13.40

Remarks:

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 600
Pressure hPa : 1000
Contr.-rod trav.mm: 13.10...13.20

Measurement
Speed 1/min : 600

1st pressure hPa : -
C-rod trav.mm : 10.10...10.30
2nd pressure hPa : 570
C-rod trav.mm : 12.40...12.50
3rd pressure hPa : 310
C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 600
Del.quantity cm³/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 12.10
Speed 1/min : 1035...1050

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D2
Edition : 12.11.87
Superceeded : 9.10.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 835

Injection pump
Pump designation : PE6P120A320RS3183-1
EP type number : 0 411 826 758
Governor
Governor design. : RQ250/1000PA832
Governor no. : 0 421 801 368

Customer-spec. information
Customer : DAF

Engine : WS 259

1st version kW : 259.0
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 850

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm³/ : 20.0...20.2

100H.: (19.7...20.5)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.6...7.0

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 550

Cont.-rod travelmm: 15.20...16.40

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm³/ : 200.0...202.0

1000H.: (197.0...205.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 550

Contr.-rod trav.mm: 15.8

Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1035...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1125...1155

4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.30

Speed 1/min : 250

C-rod trav.mm : 6.60...7.00

C-rod trav.mm : 2.00

Speed 1/min : 350...390

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 850

C-rod trav.mm : 12.30...12.40

2nd speed 1/min : 1000

C-rod trav.mm : 12.20...12.40

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 1000

Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : -

C-rod trav.mm : 10.10...10.30

2nd pressure hPa : 430

C-rod trav.mm : 11.60...11.70

3rd pressure hPa : 280

C-rod trav.mm : 10.50...10.70

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600

Del.quantity cm³/ : 144.0...146.0

1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.10

Speed 1/min : 1035...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm³/ : 16.0...22.0
1000H.: (13.0...25.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:

| BOSCH INJ. PUMP TEST SPECIFICATIONS

| Note inst. in remarks column

| Test sheet : DAF 11.7 E2
| Edition : 12.11.87
| Superceeded : 9.10.87
| Calibrating oil : ISO-4113

| Combination no. : 0 401 846 840

| Injection pump
| Pump designation : PE6P120A320RS3183-1Z
| EP type number : 0 411 826 760
| Governor
| Governor design. : RQV250...1000PA851-1
| Governor no. : 0 421 813 605

| Customer-spec. information

| Customer : DAF

| Engine : WS 225

| 1st version kW : 225.0
| Speed 1/min: 2000

| TEST BENCH REQUIREMENTS

| Calibrating-oil
| inlet temp. °C : 38...42

| Overflow valve : 1 417 413 025

| Inlet press., bar : 1.50

| Calibrating nozzle-holder
| assembly : 1 688 901 019

| Opening
| pressure, bar : 207...210

| Perforated-plate
| diameter mm : 0,8

| Test inj. tubing : 1 680 750 067

| Outside diameter
| x Wall thickness
| x Length mm : 6.00X1.50X1000

| (A) Injection pump setting values
| Insp. values in parentheses
| Set constant delivery quant.
| per values -----

| START OF DELIVERY

| Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 11.30...11.40

Del.quantity cm³/ : 18.1...18.3

100H.: (17.8...18.6)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.6...7.0

Del.quantity cm³/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm³/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.30...1.70

2nd speed 1/min: 400

Sleeve travel mm: 3.20...3.60

3rd speed 1/min: 800

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 1000

Sleeve travel mm: 7.90...8.10

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm³/ : 181.0...183.0

1000H.: (178.0...186.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.30

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1120...1150

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 15...23

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.30

Speed 1/min : 250

C-rod trav.mm : 6.60...7.00

CONSTANT REGULATION

Speed 1/min : 275...385

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 1000

Contr.-rod trav.mm: 11.30...11.40

Measurement

Speed 1/min : 600

1st pressure hPa : -

C-rod trav.mm : 10.10...10.30

2nd pressure hPa : 330

C-rod trav.mm : 11.00...11.10

3rd pressure hPa : 260

C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 200 (220)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 600

Del.quantity cm³/ : 144.0...146.0

1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.30

Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 6.60...7.00

Del.quantity cm³/ : 14.0...20.0
1000H.: (11.0...23.0)

Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:

I BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11.7 E3

Edition : 12.11.87

Superceded : 9.10.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 841

Injection pump

Pump designation : PE6P120A320RS3183-1

EP type number : 0 411 826 758

Governor

Governor design. : RQV250...1000PA851-2

Governor no. : 0 421 813 606

Customer-spec. information

Customer : DAF

Engine : WS 259

1st version kW : 259.0

Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(f) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/min: 850

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm³/ : 20.0...20.2

100H.: (19.7...20.5)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.6...7.0

Del.quantity cm³/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm³/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.30...1.70

2nd speed 1/min: 400

Sleeve travel mm: 3.20...3.60

3rd speed 1/min: 800

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 1000

Sleeve travel mm: 7.90...8.10

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm³/ : 200.0...202.0

1000H.: (197.0...205.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 51...59

Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1120...1150

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 16...24

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.30

Speed 1/min : 250

C-rod trav.mm : 6.60...7.00

CONSTANT REGULATION

Speed 1/min : 275...385

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 1000

Contr.-rod trav.mm: 12.10...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : -

C-rod trav.mm : 10.10...10.30

2nd pressure hPa : 430

C-rod trav.mm : 11.60...11.70

3rd pressure hPa : 280

C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 200 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 600

Del.quantity cm³/ : 144.0...146.0

1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.10
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 260.0...300.0
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 6.60...7.00
Del.quantity cm³/ : 14.0...20.0
1000H.: (11.0...23.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 13,8 I2
Edition : 12.11.87
Superceeded : 27.3.87
Calibrating oil : ISO-4113

Combination no. : 0 401 846 843

Injection pump
Pump designation : PE6P120A720RS3069
EP type number : 0 411 826 712
Governor
Governor design. : RQV300...1000PA501-4
Governor no. : 0 421 813 609

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8210.22.373

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing[°]CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1000

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm³/ : 20.5...20.7

100H.: (20.2...21.0)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.4

Del.quantity cm³/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm³/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 1.50...1.90

2nd speed 1/min: 450

Sleeve travel mm: 2.90...3.30

3rd speed 1/min: 800

Sleeve travel mm: 5.70...6.10

4th speed 1/min: 1000

Sleeve travel mm: 8.00...8.20

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1035

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 700

Del.quantity cm³/ : 205.0...207.0

1000H.: (202.0...210.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:

1st c-rod trav.mm : 11.50

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1130...1160

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 300

C-rod trav.mm : 6.00...6.40

C-rod trav.mm : 2.00

CONSTANT REGULATION

Speed 1/min : 320...420

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.80...10.00

2nd pressure hPa : 280

C-rod trav.mm : 11.80...11.90

3rd pressure hPa : 230

C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 500

Del.quantity cm³/ : 211.0...217.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 131.0...133.0

1000H.: (128.0...136.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.50
Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H. : 180.0...200.0
1000H. : (176.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 13,8 H1

Edition : 07.12.87

Superceeded : 13.5.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 844

Injection pump

Pump designation : PE6P120A720RS3069

EP type number : 0 411 826 712

Governor

Governor design. : RQ300/1000PAS02-1

Governor no. : 0 421 801 388

Customer-spec. information

Customer : IVECO-FIAT

Engine : 8210.22.371

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^DCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm³/ : 20.5...20.7

100H.: (20.2...21.0)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.4

Del.quantity cm³/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 700

Del.quantity cm³/ : 205.0...207.0

1000H.: (202.0...210.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 11.40

Speed 1/min : 1045...1060

2nd c-rod trav.mm : 4.00

Speed 1/min : 1135...1165

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.2

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 300

C-rod trav.mm : 6.00...6.40

C-rod trav.mm : 2.00

Speed 1/min : 360...400

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 13.00...13.10

2nd speed 1/min : 600

C-rod trav.mm : 13.00...13.20

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.80...10.00

2nd pressure hPa : 280

C-rod trav.mm : 11.80...11.90

3rd pressure hPa : 220

C-rod trav.mm : 10.70...11.00

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 500

Del.quantity cm³/ : 211.0...217.0

1000H.: (208.0...220.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : 131.0...133.0

1000H.: (128.0...136.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.40

Speed 1/min : 1045...1060

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 180.0...200.0

1000H.: (176.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 E 9
 Edition : 12.11.87
 Superceded : 18.9.87
 Calibrating oil : ISO-4113

Combination no. : 0 401 846 858

Injection pump
 Pump designation : PE6P120A320LS3810-10
 EP type number : 0 411 826 734
 Governor
 Governor design. : RQ300/1150PA511-4
 Governor no. : 0 421 801 341

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm³/ : 15.8...16.0

100H.: (15.5...16.3)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.8...5.0

Del.quantity cm³/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.10...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 700

Del.quantity cm³/ : 158.0...160.0

1000H.: (155.0...163.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 19.9

Testing:

1st c-rod trav.mm : 9.40
Speed 1/min : 1195...1210
2nd c-rod trav.mm : 4.00
Speed 1/min : 1250...1280
4th speed 1/min : 1360
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min : 200
C-rod trav.mm min : 6.70
Speed 1/min : 300
C-rod trav.mm : 4.80...5.00
C-rod trav.mm : 2.00
Speed 1/min : 360...390

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : -
Contr.-rod trav.mm: 10.00...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 340
C-rod trav.mm : 10.20...10.30

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700
Speed 1/min : 600
Del.quantity cm³/ : 157.0...163.0
1000H.: (154.0...166.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 139.0...142.0
1000H.: (136.0...145.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.40
Speed 1/min : 1195...1210

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:
APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ENA 11.9 C

Edition : 20.11.87

Superceeded : 18.9.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 860

Injection pump

Pump designation : PE6P120A320RS3200

EP type number : 0 411 826 766

Governor

Governor design. : RQV250...1000PA808-1

Governer no. : 0 421 813 660

Customer-spec. information

Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0

Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90

: (3.75...3.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 600

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 25.6...25.8

100H.: (25.3...26.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.1...3.5

Del.quantity cm3/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 1.70...2.30

3rd speed 1/min: 700

Sleeve travel mm: 4.70...5.30

4th speed 1/min: 1045

Sleeve travel mm: 8.00...8.20

5th speed 1/min: 1135

Sleeve travel mm: 9.10...9.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1090

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600

Charge press. hPa : 1200

Del. quantity cm³/ : 256.0...258.0
1000H.: (253.0...261.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 42...50

Testing:
1st c-rod trav.mm : 11.00
Speed 1/min : 1050...1060
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 5...13

Testing:
Speed 1/min : 100
C-rod trav.mm min : 4.80
Speed 1/min : 250
C-rod trav.mm : 3.10...3.50

CONSTANT REGULATION

Speed 1/min : 250...330

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1200
Contr.-rod trav.mm: 12.00...12.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 8.50...8.90
2nd pressure hPa : 710
C-rod trav.mm : 11.30...11.40
3rd pressure hPa : 440
C-rod trav.mm : 9.50...9.70

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1200
Speed 1/min : 900
Del. quantity cm³/ : 249.0...255.0
1000H.: (246.0...258.0)

Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ : 151.0...153.0
1000H.: (148.0...156.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.00
Speed 1/min : 1050...1060

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 230.0...260.0
1000H.: (226.0...264.0)

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.10...3.50
Del. quantity cm³/ : 17.0...23.0
1000H.: (14.0...26.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 U
 Edition : 12.11.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 401 846 872

Injection pump
 Pump designation : PE6P120A320LS3815-12
 EP type number : 0 411 826 770
 Governor
 Governor design. : RQV300..1050PA880
 Governor no. : 0 421 801 418

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 '019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 13.10...13.30

Del.quantity cm³/ : 19.0...19.2

100H.: (18.7...19.5)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm³/ : 1.4...2.2

100H.: (1.1...2.5)

Dispersion cm³/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.20...1.40

2nd speed 1/min: 600

Sleeve travel mm: 4.90...5.10

3rd speed 1/min: 800

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 1080

Sleeve travel mm: 7.70...8.10

5th speed 1/min: 1130

Sleeve travel mm: 8.50...9.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1100

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600
 Charge press. hPa : 700
 Del.quantity cm³/ : 190.0...192.0
 1000H.: (187.0...195.0)
 Dispersion cm³/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 48...56

Testing:
 1st c-rod trav.mm : 11.60
 Speed 1/min : 1090...1100
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1170...1200
 4th speed 1/min : 1350
 C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
 position degrees: 14...22

Testing:
 Speed 1/min : 100
 C-rod trav.mm min : 6.90
 Speed 1/min : 300
 C-rod trav.mm : 5.40...5.60
 C-rod trav.mm : 2.00
 Speed 1/min : 390...430

TORQUE CONTROL

2nd speed 1/min : 1050
 C-rod trav.mm : 12.30...12.50
 3rd speed 1/min : 700
 C-rod trav.mm : 13.50...13.70

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
 Setting
 Speed 1/min : 600
 Pressure hPa : 700
 Contr.-rod trav.mm: 13.10...13.30

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 C-rod trav.mm : 11.10...11.30
 2nd pressure hPa : 550
 C-rod trav.mm : 12.70...12.90
 3rd pressure hPa : 780
 C-rod trav.mm : 13.20...13.30
 4th pressure hPa : 1100
 C-rod trav.mm : 13.45...13.55

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
 Charge press. hPa : 1100
 Speed 1/min : 1050
 Del.quantity cm³/ : 184.0...187.0
 1000H.: (181.0...190.0)
 Dispersion cm³/ : 8.00
 1000H.: (12.0)
 Charge press. hPa : 1100
 Speed 1/min : 700
 Del.quantity cm³/ : 204.0...208.0
 1000H.: (201.0...211.0)
 Dispersion cm³/ : 8.00
 1000H.: (12.0)
 Charge press. hPa : -
 Speed 1/min : 500
 Del.quantity cm³/ : 129.0...131.0
 1000H.: (126.0...134.0)
 Dispersion cm³/ : 8.00
 1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
 1mm control-rod travel less than
 full-load trav.mm: 11.60
 Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
 Del.quantity cm³/ : 190.0...210.0
 1000H.: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 C 3
Edition : 07.12.87
Superceded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 848 790

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-17
Governor no. : 0 421 801 410

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 192,0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 11.50...11.60

Del.quantity cm³/ : 11.7...11.9

100H.: (11.4...12.1)

Dispersion cm³/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.4...8.6

Del.quantity cm³/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm³/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 600

Cont.-rod travelmm: 13.20...14.20

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm³/ : 117.0...119.0

1000H.: (114.5...121.5)

Dispersion cm³/ : 4.00

1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 13.7

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1095...1110
2nd c-rod trav.mm : 4.00
Speed 1/min : 1145...1175
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 8.5

Testing:

Speed 1/min : 200
C-rod trav.mm min : 10.00
Speed 1/min : 300
C-rod trav.mm : 8.40...8.60
C-rod trav.mm : 2.00
Speed 1/min : 425...485

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 600
Del.quantity cm³/ : 97.0...100.0
1000H.: (94.0...103.0)
Dispersion cm³/ : 8.00
1000H.: (11.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.50
Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 D 4

Edition : 12.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 401 848 791

Injection pump

Pump designation : PE8P110A320LS3842

EP type number : 0 411 818 714

Governor

Governor design. : RQV300...1050PA829-3

K

Governer no. : 0 421 815 172

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0

Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values

Insp. values in parentheses

Set constant delivery quant.

per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 SD ang. spacing°CS: 270-315
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 13.2...13.4

100H.: (12.9...13.6)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.8...9.0

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 3.70...4.00

3rd speed 1/min: 800

Sleeve travel mm: 5.80...6.10

4th speed 1/min: 1090

Sleeve travel mm: 8.10...8.50

5th speed 1/min: 1170

Sleeve travel mm: 9.50...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1050

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050
Del.quantity cm³/ : 132.0...134.0
1000H.: (129.5...136.5)
Dispersion cm³/ : 4.00
1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Setting point:
Speed 1/min : 1050
Contr.-rod trav.mm: 16.5

Testing:
1st c-rod trav.mm : 11.90
Speed 1/min : 1090...1100
2nd c-rod trav.mm : 4.00
Speed 1/min : 1150...1180
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 8.9

Testing:
Speed 1/min : 200
C-rod trav.mm min : 10.50
Speed 1/min : 300
C-rod trav.mm : 8.80...9.00

CONSTANT REGULATION
Speed 1/min : 300...500

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1050
C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 600
C-rod trav.mm : 12.90...13.10
3rd speed 1/min : 900
C-rod trav.mm : 13.40...13.60

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 600
Del.quantity cm³/ : 119.0...122.0
1000H.: (116.0...125.0)
Dispersion cm³/ : 6.00
1000H.: (9.00)
Speed 1/min : 900

Del.quantity cm³/ : 130.0...134.0
1000H.: (127.0...137.0)
Dispersion cm³/ : 6.00
1000H.: (9.00)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.90
Speed 1/min : 1090...1100

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 C 5
Edition : 20.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 848 794

Injection pump
Pump designation : PE8P110A320LS3842
EP type number : 0 411 818 714
Governor
Governor design. : RQ300/1050PA187-18
Governor no. : 0 421 801 133

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/min: 750

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm³/ : 12.1...12.3

100H.: (11.8...12.5)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.6...8.8

Del.quantity cm³/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm³/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Cont.-rod trav.mmm: 13.00...14.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Del.quantity cm³/ : 121.0...123.0

1000H.: (118.5...125.5)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.5

Testing:

1st c-rod trav.mm : 11.60

Speed 1/min : 1095...1110
2nd c-rod trav.mm : 4.00
Speed 1/min : 1150...1180
4th speed 1/min : 1350
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.9

Testing:

Speed 1/min : 200
C-rod trav.mm min : 8.50
Speed 1/min : 300
C-rod trav.mm : 6.80...7.00
C-rod trav.mm : 2.00
Speed 1/min : 400...440

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1050
Del.quantity cm³/ : 131.0...135.0
1000H.: (128.0...138.0)
Dispersion cm³/ : 7.00
1000H.: (10.0)

SETTING CONTROL-ROD STOP

Speed 1/min : 600

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than
full-load trav.mm: 11.60
Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 E 6
Edition : 20.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 849 738

Injection pump
Pump designation : PE10P120A320LS3824-
10
EP type number : 0 411 829 701
Governor
Governor design. : RQV300...1150PA867
Governor no. : 0 421 813 630

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 423 LA

1st version kW : 386.0
Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 18,2 C
 Edition : 20.11.87
 Superceeded : 26.6.87
 Calibrating oil : ISO-4113

Combination no. : 0 401 849 734

Injection pump
 Pump designation : PE10P120A520/4LS3843
 EP type number : 0 411 829 707
 Governor
 Governor design. : RQ300/1000PA837
 Governer no. : 0 421 801 372

Cust. part no. : 2-7778

Customer-spec. information
 Customer : MAN

Engine : D2840LF

1st version KW : 338.0
 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.90...4.00
 : (3.85...4.05)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 11.30...11.40

Del.quantity cm3/ : 20.1...20.3

100H.: (19.8...20.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.2

Del.quantity cm3/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 1000

Del.quantity cm3/ : 201.0...203.0

1000H.: (198.0...206.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:
1st c-rod trav.mm : 10.30
Speed 1/min : 1045...1060
2nd c-rod trav.mm : 4.00
Speed 1/min : 1125...1155
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 6.1

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.60
Speed 1/min : 300
C-rod trav.mm : 6.00...6.20
C-rod trav.mm : 2.00
Speed 1/min : 365...405

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1000
C-rod trav.mm : 11.80...11.90
2nd speed 1/min : 600
C-rod trav.mm : 11.80...12.00

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 1000
Contr.-rod trav.mm: 11.30...11.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 10.10...10.20
2nd pressure hPa : 530
C-rod trav.mm : 10.40...10.50
3rd pressure hPa : 650
C-rod trav.mm : 10.90...11.10

SWITCH-OVER POINT
Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 500

Del.quantity cm³/ : 144.0...146.0
1000H.: (141.0...149.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 10.30
Speed 1/min : 1045...1060

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 190.0...210.0
1000H.: (186.0...214.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 6.00...6.20
Del.quantity cm³/ : 17.0...23.0
1000H.: (14.0...26.0)
Dispersion cm³/ : 8.00
1000H.: (12.00)

Remarks: : MAN-NR. 2-7778

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 10- 9- 4- 1- 8- 7
- 6- 3- 5- 2SD ang. spacing°CS: 0-45-72-117-144-189-
216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

BASIC SETTING

1st speed 1/min: 1150

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm³/: 18.6...18.8

100H.: (18.3...19.1)

Dispersion cm³/: 0.5

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm³/: 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/: 0.8

100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor**SLEEVE TRAVELS**

1st speed 1/min: 300

Sleeve travel mm: 1.40...1.60

2nd speed 1/min: 550

Sleeve travel mm: 5.00...5.20

3rd speed 1/min: 900

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 1200

Sleeve travel mm: 8.60...8.80

5th speed 1/min: 1250

Sleeve travel mm: 9.60...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1185

Cont.-rod trav.mm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP**1st version**

Speed 1/min: 1150

Charge press. hPa : 700

Del.quantity cm³/: 186.0...188.0

1000H.: (183.0...191.0)

Dispersion cm³/: 5.00

1000H.: (8.00)

HIGHEST RATED SPEED**1st version**

Control-lever

position degrees: 51...59

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1235...1265

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever

position degrees: 15...23

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.50

Speed 1/min : 300

C-rod trav.mm : 5.00...5.20

CONSTANT REGULATION

Speed 1/min : 300...400

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version**Setting**

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.30...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 390

C-rod trav.mm : 10.70...10.90

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 700
Speed 1/min : 750
Del.quantity cm³/ 1000H.: 193.0...196.0
Dispersion cm³/ 1000H.: 8.00
1000H.: (190.0...199.0)
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ 1000H.: 146.0...148.0
1000H.: (143.0...151.0)
Dispersion cm³/ 1000H.: 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.00
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 160.0...180.0
1000H.: (156.0...184.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 7,1 A 2
Edition : 20.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 401 876 320

Injection pump
Pump designation : PE6P110A320RS492
EP type number : 0 411 816 161
Governor
Governor design. : RSV200...1100P1A305-
2
Governor no. : 0 421 833 202

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TJD71AP

TEST BENCH REQUIREMENTS

Calibrating oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm³/ : 9.8...10.0

100H.: (9.5...10.3)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 200.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm³/ : 1.6...2.2

Dispersion cm³/ : 0.3

100H.: (0.6)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 4.25

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm³/ : 98.0...100.0

1000H.: (95.0...103.0)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1110...1120

2nd c-rod trav.mm : 4.00

Speed 1/min : 1140...1170

4th speed 1/min : 1300

c-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 200
Contr.-rod trav.mm: 5.0
Speed 1/min : 200
C-rod trav.mm : 5.40...5.60
C-rod trav.mm : 2.00
Speed 1/min : 280...340

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00

Speed 1/min : 1110...1120

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 Q 4

Edition : 07.12.87

Superceeded : 12.9.86

Calibrating oil : ISO-4113

Combination no. : 0 401 876 740

Injection pump

Pump designation : PE6P120A320LS3815-10

EP type number : 0 411 826 735

Governor

Governor design. : RSV750...1150P1A820-4

Governor no. : 0 421 833 179

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 5.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285

Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/min: 1180

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 16.3...16.5

100H.: (16.0...16.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 750.0

Contr.-rod trav. m: 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100H.: (1.5...2.7)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 163.0...165.0

1000H.: (160.0...168.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 32...40
Setting point w/out aux. spring
Speed 1/min : 750
Contr.-rod trav.mm: 3.4
Speed 1/min : 750
C-rod trav.mm : 3.30...3.50
C-rod trav.mm : 2.00
Speed 1/min : 755...815

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.
APPLICATION
Combine-harvester

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 975
C-rod trav.mm : 11.60...11.80
3rd speed 1/min : 600
C-rod trav.mm : 11.80...12.00

SWITCH-OVER POINT

Speed 1/min : 5 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 975
Del. quantity cm³/ : 174.0...180.0
1000H.: (171.0...183.0)
Dispersion cm³/ : 8.00
1000H.: (12.)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.00
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

M04

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 Q 8
 Edition : 07.12.87
 Superceeded : -
 Calibrating oil : ISO-4113

Combination no. : 0 401 876 740A

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-4
 Governer no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 15.3...15.5

100H.: (15.0...15.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 750.0

Contr.-rod trav. m: 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100H.: (1.5...2.7)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travemm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 153.0...155.0

1000H.: (150.0...158.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 9.40
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1350
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 32...40
Setting point w/out aux. spring
Speed 1/min : 750
Contr.-rod trav.mm: 3.4
Speed 1/min : 750
C-rod trav.mm : 3.30...3.50
C-rod trav.mm : 2.00
Speed 1/min : 755...815

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 10.40...10.50
2nd speed 1/min : 975
C-rod trav.mm : 11.00...11.20
3rd speed 1/min : 600
C-rod trav.mm : 11.30...11.50

SWITCH-OVER POINT

Speed 1/min : 5 (0)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 975
Del.quantity cm³/ : 164.0...168.0
1000H.: (161.0...171.0)
Dispersion cm³/ : 8.00
1000H.: (12.)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.40
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Remarks:

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 1
 Edition : 07.12.87
 Superceded : 21.8.87
 Calibrating oil : ISO-4113

Combination no. : 0 401 878 703

Injection pump
 Pump designation : PE8P120A320LS3816-10
 EP type number : 0 411 828 715
 Governor
 Governor design. : RSV650...1150POA823
 Governer no. : 0 421 833 166

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120Calibrating nozzle-holder
 assembly : 1 688 901 019Opening
 pressure, bar : 207...210Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.30...9.40

Del.quantity cm3/ : 13.7...13.9

100H.: (13.4...14.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 3.4...3.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 137.0...139.0

1000H.: (134.0...142.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Del.quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Testing:

1st c-rod trav.mm : 8.30
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

Remarks:

:

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

:

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 9.30...9.40
2nd speed 1/min : 975
C-rod trav.mm : 10.10...10.20
3rd speed 1/min : 1075
C-rod trav.mm : 9.60...9.80
4th speed 1/min : 700
C-rod trav.mm : 10.10...10.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 950
Del.quantity cm³/ : 154.0...158.0
1000H.: (151.0...161.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.30
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 6
 Edition : 07.12.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 401 878 703A

Injection pump
 Pump designation : PE8P120A320LS3816-10
 EP type number : 0 411 828 715
 Governor
 Governor design. : RSV650...1150POA823
 Governor no. : 0 421 833 166

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 206.0
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 9.00...9.10

Del.quantity cm3/ : 13.3...13.5
 100H.: (13.0...13.8)

Dispersion cm3/ : 0.5
 100H.: (0.9)

2nd speed 1/min: 650.0
 Contr.-rod trav. m: 3.4...3.6
 Del.quantity cm3/ : 1.6...2.2
 100H.: (1.3...2.5)
 Dispersion cm3/ : 0.8
 100H.: (1.2)

SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed 1/min: 800
 Cont.-rod travelmm: 0.30...0.70

Governor-spring reload
 Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180
 Del.quantity cm3/ : 133.0...135.0
 100H.: (130.0...138.0)
 Dispersion cm3/ : 5.00
 100H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 42...50

Del. quantity cm³/ : 140.0...160.0
1000H.: (136.0...164.0)

Testing:

1st c-rod trav.mm : 8.00
Speed 1/min : 1210...1220
2nd c-rod trav.mm : 4.00
Speed 1/min : 1235...1255
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

Remarks:

:

LOWEST RATED SPEED I

Control-lever
position degrees: 20...28
Setting point w/out aux. spring
Speed 1/min : 650
Contr.-rod trav.mm: 3.6
Speed 1/min : 650
C-rod trav.mm : 3.50...3.70
C-rod trav.mm : 2.00
Speed 1/min : 655...695

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 9.00...9.10
2nd speed 1/min : 975
C-rod trav.mm : 9.80...10.00
3rd speed 1/min : 1075
C-rod trav.mm : 9.30...9.50
4th speed 1/min : 700
C-rod trav.mm : 9.80...10.00

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 950
Del. quantity cm³/ : 145.0...149.0
1000H.: (142.0...152.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 8.00
Speed 1/min : 1210...1220

STARTING FUEL DELIVERY

Speed 1/min : 100

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9A19
 Edition : 07.12.87
 Superceeded : 12.9.86
 Calibrating oil : ISO-4113

Combination no. : 0 402 036 058

Injection pump
 Pump designation : PES6P120A720/3LS470-
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQ300/1100PA684-1
 Governer no. : 0 421 801 344

Cust. part no. : 2-7756

Customer-spec. information
 Customer : MAN

Engine : D2866LF

1st version kW : 243.0
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm³/ : 20.2...20.4

100H.: (19.9...20.7)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.7...4.9

Del.quantity cm³/ : 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Charge press. hPa : 1000

Del.quantity cm³/ : 202.0...204.0

1000H.: (199.0...207.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:
 1st c-rod trav.mm : 9.50
 Speed 1/min : 1145...1160
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1185...1215
 4th speed 1/min : 1300
 C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I
 Setting point w/out aux. spring
 Speed 1/min : 300
 Contr.-rod trav.mm: 4.8

Testing:
 Speed 1/min : 100
 C-rod trav.mm min : 6.30
 Speed 1/min : 300
 C-rod trav.mm : 4.70...4.90
 C-rod trav.mm : 2.00
 Speed 1/min : 340...380

TORQUE CONTROL
 Dimension a mm : 0.50
 Torque-control curve - 1st version
 1st speed 1/min : 750
 C-rod trav.mm : 11.90...12.20
 2nd speed 1/min : 1100
 C-rod trav.mm : 10.60...10.80
 3rd speed 1/min : 875
 C-rod trav.mm : 11.80...12.00
 4th speed 1/min : 950
 C-rod trav.mm : 11.20...11.50

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version
 Setting
 Speed 1/min : 500
 Pressure hPa : 1000
 Contr.-rod trav.mm: 11.10...11.20

Measurement
 Speed 1/min : 500
 1st pressure hPa : -
 C-rod trav.mm : 8.90...9.10
 2nd pressure hPa : 85
 C-rod trav.mm : 9.30...9.40
 3rd pressure hPa : 280
 C-rod trav.mm : 10.50...10.90

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version
 Charge press. hPa : 1000
 Speed 1/min : 1100
 Del.quantity cm³/ : 203.0...207.0
 1000H.: (200.0...210.0)
 Charge press. hPa : 1000
 Speed 1/min : 650
 Del.quantity cm³/ : 198.0...204.0
 1000H.: (195.0...207.0)
 Charge press. hPa : 280
 Speed 1/min : 500
 Del.quantity cm³/ : 184.0...196.0
 1000H.: (181.0...199.0)
 Charge press. hPa : -
 Speed 1/min : 500
 Del.quantity cm³/ : 132.0...134.0
 1000H.: (129.0...137.0)

ROTATIONAL-SPEED LIMITATION

1st version
 1mm control-rod travel less than
 full-load trav.mm: 9.50
 Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100
 Del.quantity cm³/ : 225.0...245.0
 1000H.: (221.0...249.0)

LOW IDLE

Speed 1/min : 300
 Contr.-rod trav.mm: 4.70...4.90
 Del.quantity cm³/ : 12.0...18.0
 1000H.: (9.0...21.0)
 Dispersion cm³/ : 8.00
 1000H.: (12.00)

Remarks: : MAN-NR. 2-7756

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,9 G6
Edition : 07.12.87
Superceeded : 18.8.87
Calibrating oil : ISO-4113

Combination no. : 0 402 036 064

Injection pump
Pump designation : PES6P110A720/3LS477-
2

EP type number : 0 412 015 071

Governor

Governor design. : RQ250/1100PA817-1

Governor no. : 0 421 801 362

Customer-spec. information

Customer : MAN

Engine : D2866UH/200

1st version kW : 150.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing⁰CS: 0-60-120-180-240-300
Tolerance + -⁸ : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/min: 800

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm³/ : 9.1...9.4

100H.: (8.8...9.6)

Dispersion cm³/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.1...6.3

Del.quantity cm³/ : 1.5...2.0

100H.: (1.2...2.2)

Dispersion cm³/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Del.quantity cm³/ : 91.0...94.0

1000H.: (88.5...96.5)

Dispersion cm³/ : 4.00

1000H.: (7.50)

HIGHEST RATED SPEED

1st version

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1215...1245

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.2

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 250

C-rod trav.mm : 6.10...6.30

C-rod trav.mm : 2.00

Speed 1/min : 330...370

TORQUE CONTROL

Dimension a mm : -

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 10.50...10.60

2nd speed 1/min : 500

C-rod trav.mm : 10.50...10.70

SWITCH-OVER POINT

Speed 1/min : 170 (190)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 1100

Del.quantity cm³/ : 101.0...109.0

1000H.: (98.0...112.0)

Speed 1/min : 500

Del.quantity cm³/ : 77.0...85.0

1000H.: (74.0...88.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50

Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 110.0...130.0

1000H.: (106.0...134.0)

LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 6.10...6.30

Del.quantity cm³/ : 15.0...20.0

1000H.: (12.5...22.5)

Dispersion cm³/ : 4.50
1000H.: (7.50)

Remarks:

:

APPLICATION
Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : AL0 13,8 B1
Edition : 9.12.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 046 159

Injection pump
Pump designation : PES6P120A320RS354
Governor
Governor design. : RQV300...950PA362KR

Customer-spec. information
Customer : ALLIS-CHALMERS

Engine : 16.000-25.000

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8,00x2,00x1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Prestroke mm : 2.75...2.85

: (2.70...2.90)

Contr.-rod trav.mm: 9.60

Cam sequence : 1-5-3-6-2-4

SD ang. spacing °CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 9.60

Del.quantity cm3/ : 20.4...20.6

100H.: (20.2...20.8)

Dispersion cm3/ : 0.4

100H.: (-)

2nd speed 1/min: 300

Contr.-rod trav. m: 4.80

Del.quantity cm3/ : 1.8...2.3

100H.: (-)

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 950

Cont.-rod travelmm: 15.20...17.50

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm3/ : 204.0...206.0

100H.: (202.0...208.0)

Dispersion cm3/ : 4.0

100H.: (-)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 62...70

Testing:

1st c-rod trav.mm : 16.35

Speed 1/min : 950

2nd c-rod trav.mm : 15.05

Speed 1/min : 1000

3rd c-rod trav.mm : 4.50...9.50

Speed 1/min : 1100

4th speed 1/min : 1150

C-rod trav.mm : 0...6.60

5th speed 1/min : 1250

C-rod trav.mm : 0...0.01

LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 200
C-rod trav.mm min : 8.00
Speed 1/min : 270
C-rod trav.mm : 5.80...8.00
C-rod trav.mm : 4.10
Speed 1/min : 350
Speed 1/min : 380
C-rod trav.mm max : 3.15
Speed 1/min : 400
C-rod trav.mm : 3.00
C-rod trav.mm : -
Speed 1/min : 550

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm³/ 1000H. : 194.5...197.5
Dispersion cm³/ 1000H. : (193.0...199.0)
- (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 8.60
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H. : 130.0...170.0
- (-)

LOW IDLE

Speed 1/min : 300
Del.quantity cm³/ 1000H. : 17.0...24.0
- (-)

Remarks:
: ALLIS-CHALMERS NO.
: 4 395 448

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : RVI 8,8 B 2

Edition : 12.11.87

Superceeded : 18.8.87

Calibrating oil : ISO-4113

Combination no. : 0 402 046 247

Injection pump

Pump designation : PES6P120A320RS417

EP type number : 0 412 026 036

Governor

Governor design. : RQV300...1150PAS27-1

K

Governer no. : 0 421 815 165

Customer-spec. information

Customer : RVI

Engine : MIDR 062030

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 10.00...11.00
& c-rod trav max. : 21.00

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 8.50...8.60

Del.quantity cm3/ : 14.4...14.6

100H.: (14.1...14.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 5.2...5.4

Del.quantity cm3/ : 1.8...2.4

100H.: (1.5...2.7)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.70...2.10

2nd speed 1/min: 900

Sleeve travel mm: 5.80...6.20

3rd speed 1/min: 1150

Sleeve travel mm: 8.00...8.20

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1190

Cont.-rod travemm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 144.0...146.0

1000H.: (141.0...149.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...6418

Testing:

1st c-rod trav.mm : 7.50
Speed 1/min : 1205...1215
2nd c-rod trav.mm : 4.00
Speed 1/min : 1260...1290
4th speed 1/min : 1450
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 62...70

Testing:

Speed 1/min : 100
C-rod trav.mm min : 6.30
Speed 1/min : 300
C-rod trav.mm : 3.30...3.50

CONSTANT REGULATION

Speed 1/min : 320...440

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150
C-rod trav.mm : 8.50...8.60
2nd speed 1/min : 750
C-rod trav.mm : 7.60...7.70
3rd speed 1/min : 500
C-rod trav.mm : 7.00...7.20
4th speed 1/min : 350
C-rod trav.mm : 7.00...7.20

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm³/ 1000H.: 122.0...128.0
1000H.: (119.0...131.0)
Speed 1/min : 500
Del.quantity cm³/ 1000H.: 69.0...75.0
1000H.: (66.0...78.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 7.50

Speed 1/min : 1205...1215

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ 1000H.: 140.0...160.0
1000H.: (136.0...164.0)

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 3.30...3.50
Del.quantity cm³/ 1000H.: 18.0...24.0
1000H.: (15.0...27.0)
Dispersion cm³/ 1000H.: 8.00
1000H.: (12.00)

Remarks:

:
Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 9.6 B 1

Edition : 6.12.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 402 076 714

Injection pump

Pump designation : PES6P110A720RS3079

EP type number : 0 412 016 711

Governor

Governor design. : RSV300...1150P1A486-
1

Governer no. : 0 421 833 210

Customer-spec. information

Customer : KHD

Engine : BF6L413FRC

1st version kW : 199.0

Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1-5-3-6-2-4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 16.0...16.4

100H.: (15.7...16.7)

Dispersion cm3/ : 0.4

100H.: (0.75)

2nd speed 1/min: 300
Contr.-rod trav. m: 7.50...7.70

Del.quantity cm3/ : 1.6...2.2

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.7)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod trav.mmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa: 1200

Del.quantity cm3/ : 160.0...164.0

1000H.: (157.0...167.0)

Dispersion cm3/ : 4.0

1000H.: (7.5)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 48...56

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1220...1250
4th speed 1/min : 1390
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 9...17
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 7.60
Speed 1/min : 300
C-rod trav.mm : 7.50...7.70
C-rod trav.mm : 2.00
Speed 1/min : 310...370

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 550
Pressure hPa : 1200
Contr.-rod trav.mm: 13.70...13.80

Measurement

Speed 1/min : 550

1st pressure hPa : -
C-rod trav.mm : 12.30...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.40...13.50
3rd pressure hPa : 400
C-rod trav.mm : 12.60...12.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1200
Speed 1/min : 800
Del. quantity cm³/ : 158.0...162.0
1000H.: (155.0...165.0)

Charge press. hPa : -
Speed 1/min : 500
Del. quantity cm³/ : 123.0...125.0
1000H.: (120.0...128.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.70
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 170.0...190.0
1000H.: (-)

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 16,2 A

Edition : 20.11.87

Superceeded : 5.6.87

Calibrating oil : ISO-4113

Combination no. : 0 402 646 850

Injection pump

Pump designation : PE6P130A720RS7140

EP type number : 0 412 636 807

Governor

Governor design. : RQV250...900PA869

Governor no. : 0 421 813 634

Customer-spec. information

Customer : VOLVO-PENTA

Engine : TID 162 AP

1st version kW : 357.0

Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 3.60...3.70
	: (3.55...3.75)
Contr.-rod trav.mm	: 9.00...12.00
Cam sequence	: 1- 5- 3- 6- 2- 4

SD ang. spacing°CS	: 0-60-120-180-240-300
Tolerance + -	: 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 700

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 29.2...29.4

100H.: (28.8...29.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm3/ : 1.7...2.2

100H.: (1.7...2.2)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 0.90...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.00...2.60

3rd speed 1/min: 700

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 925

Sleeve travel mm: 7.30...7.50

5th speed 1/min: 985

Sleeve travel mm: 8.10...8.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 980

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 292.0...294.0

1000H.: (288.0...298.0)

Dispersion cm³/ : 5.00
1000H.: (9.00)

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 9.20
Speed 1/min : 920...925
2nd c-rod trav.mm : 4.00
Speed 1/min : 970...1000
4th speed 1/min : 1100
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.30
Speed 1/min : 250
C-rod trav.mm : 3.70...3.90

CONSTANT REGULATION

Speed 1/min : 250...360

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 9.20
Speed 1/min : 920...925

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 220.0...260.0

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm³/ : 17.0...22.0
1000H.: (17.0...22.0)
Dispersion cm³/ : 5.00
1000H.: (7.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm,
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 16,2 B

Edition : 20.11.87

Superceeded :

Calibrating oil : ISO-4113

Combination no. : 0 402 646 857

Injection pump

Pump designation : PE6P130A720RS7150

EP type number : 0 412 636 808

Governor

Governor design. : RQV250...900PA881

Governer no. : 0 421 813 676

Customer-spec. information

Customer : VOLVO-PENTA

Engine : TAMD 162 (HD)

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3,60...3,70
: (3,55...3,75)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - " : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 29.2...29.4

100H.: (28.8...29.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250,0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm3/ : 1.7...2.2

100H.: (1.4...2.4)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 0.90...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.00...2.60

3rd speed 1/min: 700

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 925

Sleeve travel mm: 7.30...7.50

5th speed 1/min: 985

Sleeve travel mm: 8.10...8.50

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 980

Cont.-rod travellmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa: 900

Del.quantity cm3/ : 292.0...294.0

100H.: (288.0...298.0)

Dispersion cm3/ : 5.00

100H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 55...63

Testing:

1st c-rod trav.mm : 9.20
Speed 1/min : 920...925
2nd c-rod trav.mm : 4.00
Speed 1/min : 970...1000
4th speed 1/min : 1100
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 63...71

Testing:

Speed 1/min : 100
C-rod trav.mm min : 5.30
Speed 1/min : 250
C-rod trav.mm : 3.70...3.90

CONSTANT REGULATION

Speed 1/min : 250...360

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 7.60...7.80
2nd pressure hPa : 740
C-rod trav.mm : 10.00...10.10
3rd pressure hPa : 300
C-rod trav.mm : 7.90...8.10

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm³/ 1000H.: 192.5...195.5
1000H.: (189.0...199.0)

ROTATIONAL-SPEED LIMITATION

I 1st version
1mm control-rod travel less than

full-load trav.mm: 9.20
Speed 1/min : 920...925

LOW IDLE

Speed 1/min : 250
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm³/ 1000H.: (14.5...24.5)
Dispersion cm³/ 1000H.: 5.00
1000H.: (7.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 I
 Edition : 20.11.87
 Superceeded : 28.10.86
 Calibrating oil : ISO-4113

Combination no. : 0 402 648 827

Injection pump
 Pump designation : PE8P120A920/4LS7016
 EP type number : 0 412 628 814
 Governor
 Governor design. : RQV200...950PA547-7
 Governor no. : 0 421 813 550

Customer-spec. information

Customer : SCANIA

Engine : DSC14 06

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-
6- 8SD ang. spacing°CS: 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 19.0...19.2

100H.: (18.7...19.5)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.6...2.0

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with
externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.40

2nd speed 1/min: 330

Sleeve travel mm: 2.40...2.70

3rd speed 1/min: 420

Sleeve travel mm: 3.10...3.40

4th speed 1/min: 1000

Sleeve travel mm: 7.80...8.00

5th speed 1/min: 1100

Sleeve travel mm: 9.10...9.40

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod trav.mmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 190.0...192.0

1000H.: (187.0...195.0)

Dispersion cm³/ : 6.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 56...64

Testing:
1st c-rod trav.mm : 11.60
Speed 1/min : 990...1000
2nd c-rod trav.mm : 4.00
Speed 1/min : 1090...1120
4th speed 1/min : 1250
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 6...14

Testing:
Speed 1/min : 100
C-rod trav.mm min : 6.40
Speed 1/min : 225
C-rod trav.mm : 4.90...5.10
C-rod trav.mm : 2.00
Speed 1/min : 370...430

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version
Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 11.20...11.30
2nd pressure hPa : 215
C-rod trav.mm : 11.90...12.10

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 900
Speed 1/min : 950
Del.quantity cm³/ : 184.0...192.0
1000H.: (182.0...194.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 158.0...162.0
1000H.: (156.0...164.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 11.60
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...290.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 225
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 16.0...20.0
Dispersion cm³/ : 3.00
1000H.: (6.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1986-09-16

Start of delivery - engine: 17° before
TDC
Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A 9
 Edition : 20.11.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 402 648 842

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350..950PA866-2
 Governor no. : 0 421 813 673

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 275.0
 Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Contr.-rod trav.mm: 20.00...21.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 15.30...15.40

Del.quantity cm3/ : 20.9...21.1

100H.: (20.6...21.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.2...6.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with
 externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.60...0.80

2nd speed 1/min: 425

Sleeve travel mm: 2.40...2.60

3rd speed 1/min: 800

Sleeve travel mm: 5.30...5.60

4th speed 1/min: 1000

Sleeve travel mm: 7.80...8.20

5th speed 1/min: 1120

Sleeve travel mm: 9.50...10.00

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: ?

Cont.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
Speed 1/min: 950
Charge press. hPa : 950
Del.quantity cm³/ : 209.0...211.0
1000H.: (206.0...214.0)
Dispersion cm³/ : 5.00
1000H.: (9.00)

HIGHEST RATED SPEED

1st version
Control-lever
position degrees: 60...68

Testing:
1st c-rod trav.mm : 14.40
Speed 1/min : 990...1000
2nd c-rod trav.mm : 4.00
Speed 1/min : 1090...1120
4th speed 1/min : 1300
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever
position degrees: 8...16

Testing:
Speed 1/min : 100
C-rod trav.mm min : 7.90
Speed 1/min : 350
C-rod trav.mm : 6.20...6.40

CONSTANT REGULATION

Speed 1/min : 300...500

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 950
C-rod trav.mm : 15.30...15.40
2nd speed 1/min : 800
C-rod trav.mm : 16.40...16.60
3rd speed 1/min : 900
C-rod trav.mm : 15.90...16.10

Adjustment test, manifold-pressure compensator (LDA, ADA, ALDA)

1st version
Setting
Speed 1/min : 600
Pressure hPa : -
Contr.-rod trav.mm: 10.90...11.30

Measurement
Speed 1/min : 600
1st pressure hPa : 450
C-rod trav.mm : 11.70...11.90

NO2

2nd pressure hPa : 700
C-rod trav.mm : 13.80...14.00

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 950
Speed 1/min : 800
Del.quantity cm³/ : 233.0...237.0
1000H.: (230.0...240.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 143.0...145.0
1000H.: (140.0...148.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 14.40
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 190.0...210.0
1000H.: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 21,9 Y 2
Edition : 12.11.87
Superceeded : -
Calibrating oil : ISO-4113

Combination no. : 0 402 670 805

Injection pump
Pump designation : PE12P120A320LS7807-2
EP type number : 0 412 620 812
Governor
Governor design. : RSV375..1050POA535-1
Governor no. : 0 421 833 282

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 491.0

Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Calibrating nozzle-holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values _____

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

SD ang. spacing°CS: 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 12

BASIC SETTING

1st speed 1/min: 650

Contr.-rod trav.mm: 14.70...14.90

Del.quantity cm³/ : 21.6...21.9

100H.: (21.3...22.2)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 375.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod trav.mmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 650

Charge press. hPa : 800

Del.quantity cm³/ : 216.0...219.0
1000H.: (213.0...222.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 36...44

Testing:

1st c-rod trav.mm : 13.50
Speed 1/min : 1070...1080

2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160

4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 375
Contr.-rod trav.mm: 5.7

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.50
Speed 1/min : 375
C-rod trav.mm : 5.60...5.80

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1030

C-rod trav.mm : 14.50...14.70

2nd speed 1/min : 925

C-rod trav.mm : 15.10...15.30

3rd speed 1/min : 830

C-rod trav.mm : 15.70...15.90

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 800

Contr.-rod trav.mm: 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 350

C-rod trav.mm : 12.20...12.40

2nd pressure hPa : 550

C-rod trav.mm : 13.70...13.90

3rd pressure hPa : 1000

C-rod trav.mm : 15.00...15.20

4th pressure hPa : 1100

C-rod trav.mm : 15.40...15.60

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1250
Speed 1/min : 1030
Del.quantity cm³/ : 221.0...223.0
1000H.: (218.0...226.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 800
Del.quantity cm³/ : 237.0...241.0
1000H.: (234.0...244.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 134.0...136.0
1000H.: (131.0...139.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 13.50
Speed 1/min : 1070...1080

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

:
;

Observe VDT-I-420/120

O

NOS

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 28.8 D1

Edition : 12.11.87

Superceded

Calibrating oil : ISO-4113

Combination no. : 0 402 678 806

Injection pump

Pump designation : PE8P120A520/SRS7145

EP type number : 0 412 628 822

Governor

Governor design. : RSUV325...1150POA358
-1

Governor no. : 0 421 829 106

Customer-spec. information

Customer : MWM

Engine : TBD234V16

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 1 688 901 019Opening
pressure, bar : 207...210Perforated-plate
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 2- 3- 4- 7- 8-
5- 6SD ang. spacing°CS: 0-30-90-120-225-255-
315-345
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 14.90...15.01

Del.quantity cm³/ : 26.0...26.2

100H.: (25.7...26.5)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 6.0...6.2

Del.quantity cm³/ : 3.0...4.0

100H.: (2.7...4.3)

Dispersion cm³/ : 0.6

100H.: (1.0)

3rd speed 1/min: 1100

Contr.-rod trav.mm: 6.90...7.10

Del.quantity cm³/ : 1.0...6.0 *

100H.: (-)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 4.00

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

Testing:

1st c-rod trav.mm : 13.90

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1280...1310

4th speed 1/min : 1440

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 16...24
Setting point w/out aux. spring
Speed 1/min : 325
Contr.-rod trav.mm: 5.6
Speed 1/min : 325
C-rod trav.mm : 5.50...5.70
C-rod trav.mm : 2.00
Speed 1/min : 420...480

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

* = Element disconnected at idle for cylinders 2, 4, 6 and 8
Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

1st version

Setting
Speed 1/min : 500
Pressure hPa : 900
Contr.-rod trav.mm: 14.90...15.00

Unlatching at 0.35 bar...0.45 bar.

Measurement

Speed 1/min : 500

1st pressure hPa : -
C-rod trav.mm : 9.30...9.50
2nd pressure hPa : 625
C-rod trav.mm : 14.70...14.80
3rd pressure hPa : 250
C-rod trav.mm : 11.30...11.50

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.90
Speed 1/min : 1190...1200

LOW IDLE

Speed 1/min : 325
Contr.-rod trav.mm: 6.00...6.20
Del. quantity cm³/ : 30.0...40.0
1000H.: (27.0...43.0)
Dispersion cm³/ : 6.00
1000H.: (10.00)

Remarks:

:

Pump runs in tandem

Full-load delivery not known. Set according to engine test report.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G 3
 Edition : 07.12.87
 Superceeded : -
 Calibrating oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump
 Pump designation : PE8P120A320LS7801-2
 EP type number : 0 412 628 825
 Governor
 Governor design. : RSV350...1050POA535
 Governor no. : 0 421 833 281

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 320.0
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (4.15...5.35)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 8- 7- 2- 6- 3- 5-
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.50...14.60

Del.quantity cm³/ : 21.5...21.8

100H.: (21.2...22.1)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm³/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm³/ : 0.8

100H.: (1.2)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600

Charge press. hPa : 750

Del.quantity cm³/ : 215.0...218.0

1000H.: (212.0...221.0)

Dispersion cm³/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 36...44

Testing:

1st c-rod trav.mm : 14.20
Speed 1/min : 1070...1080
2nd c-rod trav.mm : 4.00
Speed 1/min : 1130...1160
4th speed 1/min : 1400
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever
position degrees: 13...21
Setting point w/out aux. spring
Speed 1/min : 350
Contr.-rod trav.mm: 5.7

Testing:

Speed 1/min : 100
C-rod trav.mm min : 19.50
Speed 1/min : 350
C-rod trav.mm : 5.60...5.80
C-rod trav.mm : 2.00
Speed 1/min : 360...420

SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1030
C-rod trav.mm : 15.20...15.30
2nd speed 1/min : 850
C-rod trav.mm : 15.70...15.90
3rd speed 1/min : 925
C-rod trav.mm : 15.40...15.60

Adjustment test, manifold-pressure
compensator (LDA,ADA,ALDA)

1st version

Setting
Speed 1/min : 600
Pressure hPa : 750
Contr.-rod trav.mm: 14.50...14.60

Measurement

Speed 1/min : 600

1st pressure hPa : 400
C-rod trav.mm : 12.20...12.40
2nd pressure hPa : 550
C-rod trav.mm : 13.70...13.90
3rd pressure hPa : 950
C-rod trav.mm : 14.90...15.10
4th pressure hPa : 1050
C-rod trav.mm : 15.30...15.50

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 1250
Speed 1/min : 1030
Del.quantity cm³/ : 230.0...232.0
1000H.: (227.0...235.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : 1250
Speed 1/min : 850
Del.quantity cm³/ : 242.0...245.0
1000H.: (239.0...248.0)
Dispersion cm³/ : 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed 1/min : 500
Del.quantity cm³/ : 147.0...149.0
1000H.: (144.0...152.0)
Dispersion cm³/ : 8.00
1000H.: (-)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than

full-load trav.mm: 14.20
Speed 1/min : 1070...1080

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 240.0...260.0
1000H.: (236.0...264.0)

Remarks:

:

Observe VDT-I-420/120

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 12.2 B
 Edition : 20.11.87
 Superceeded : 1.9.87
 Calibrating oil : ISO-4113

Combination no. : 0 402 746 809

Injection pump
 Pump designation : PES6P120A720RS7132
 EP type number : 0 412 726 806
 Governor
 Governor design. : RQ750PA836
 Governer no. : 0 421 801 373

Customer-spec. information
 Customer : PERKINS

Engine : EAGLE LE

1st version kW : 240.0
 Speed 1/min: 1500

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Perforated-plate
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Contr.-rod trav.mm: 9.00...12.00
 Cam sequence : 1- 4- 2- 6- 3- 5

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.90...16.00

Del.quantity cm³/ : 33.9...34.1

100H.: (33.6...34.4)

Dispersion cm³/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm³/ : 3.8...4.4

100H.: (3.5...4.7)

Dispersion cm³/ : 0.8

100H.: (1.2)

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version
 Speed 1/min: 700

Del.quantity cm³/ : 339.0...341.0
 1000H.: (336.0...344.0)

Dispersion cm³/ : 5.00
 1000H.: (9.00)

HIGHEST RATED SPEED

1st version
 Control-lever
 position degrees: 27...35

Testing:
 1st c-rod trav.mm : 14.90

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 785...795

4th speed 1/min : 820

C-rod trav.mm : 0.00...1.00

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.90
Speed 1/min : 750...755

STARTING FUEL DELIVERY

Speed 1/min : 100
Del. quantity cm³/ : 210.0...240.0
Contr.-rod trav.mm: 20.00...21.00

Remarks:

APPLICATION :
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 13
 Edition : 07.12.87
 Superceded : -
 Calibrating oil : ISO-4113

Combination no. : 0 403 446 179

Injection pump
 Pump designation : PESSMW100/720RS1139
 EP type number : 0 413 406 134
 Governor
 Governor design. : RQV300...1300MW74
 Governor no. : 0 420 083 112

Customer-spec. information

Customer : DB

Engine : OM366LA

1st version kW : 170,0
 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set constant delivery quant.
 per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 7.6...7.8

100H.: (7.0...8.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.50...9.70

3rd speed 1/min: 700

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 300

Sleeve travel mm: 1.30...1.70

SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1335

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 76.0...78.0

1000H.: (74.0...80.0)

Dispersion cm3/ : 3.5

1000H.: (6.0)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 50...58

Testing:

1st c-rod trav.mm : 10.00
Speed 1/min : 1340...1350
2nd c-rod trav.mm : 4.0
Speed 1/min : 1425...1455
4th speed 1/min : 1550
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever
position degrees: 18...26
Setting point w/out aux. spring
Speed 1/min : 300
Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100
C-rod trav.mm min : 9.70
Speed 1/min : 300
C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version
1st speed 1/min : 1300
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 750
C-rod trav.mm : 11.70...11.80
3rd speed 1/min : 1125
C-rod trav.mm : 11.40...11.50

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750
Del.quantity cm³/ : 68.0...70.0
1000H.: (65.0...73.0)
Dispersion cm³/ : 5.0
1000H.: (7.0)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 10.00
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 80.0...90.0
1000H.: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm³/ : 10.0...14.0
1000H.: (9.0...15.0)
Dispersion cm³/ : 3.50
1000H.: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 J 1
Edition : 06.11.87
Superceeded : 4.3.87
Calibrating oil : ISO-4113

Combination no. : 9 400 230 046

Injection pump
Pump designation : PES6A95D410RS2561
EP type number : 9 410 230 006
Governor
Governor design. : RSV600...1100A2C2048
-1L
Governor no. : 9 420 234 157

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 110.0
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.35X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95
: (1.80...,2.00)

Contr.-rod trav.mm: 10.50...10.50
 Cam sequence : 1- 5- 3- 6- 2- 4

 SD ang. spacing[°]CS: 0-60-120-180-240-300
 Tolerance + - : 0.50 (0.75)

 SD mark cyl. no. : 1
BASIC SETTING
 1st speed 1/min: 1100
 Contr.-rod trav.mm: 9.90...10.00
 Del.quantity cm³/ : 9.1...9.3
 100H.: (8.9...9.5)
 Dispersion cm³/ : 0.3
 100H.: (0.6)
 2nd speed 1/min: 600.0
 Contr.-rod trav. m: 5.0...5.2
 Del.quantity cm³/ : 1.2...1.6
 100H.: (0.9...1.8)
 Dispersion cm³/ : 0.3
 100H.: (0.5)

SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed 1/min: 800
 Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP
 1st version
 Speed 1/min: 1100
 Del.quantity cm³/ : 91.0...93.0
 1000H.: (89.0...95.0)
 Dispersion cm³/ : 3.50
 1000H.: (6.00)

HIGHEST RATED SPEED
 1st version
 Control-lever
 position degrees: 44...52

 Testing:
 1st c-rod trav.mm : 8.90
 Speed 1/min : 1145...1155
 2nd c-rod trav.mm : 4.00
 Speed 1/min : 1195...1225
 4th speed 1/min : 1300
 C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I
 Control-lever
 position degrees: 24...32
 Setting point w/out aux. spring
 Speed 1/min : 600
 Contr.-rod trav.mm: 4.6

 Testing:
 Speed 1/min : 100
 C-rod trav.mm min : 19.00
 Speed 1/min : 600
 C-rod trav.mm : 5.00...5.20
 C-rod trav.mm : 2.00
 Speed 1/min : 710...770

TORQUE CONTROL
 Torque-control curve - 1st version
 1st speed 1/min : 1100
 C-rod trav.mm : 9.90...10.00
 2nd speed 1/min : 950
 C-rod trav.mm : 10.70...10.90

FUEL-DELIVERY CHARACTERISTICS

 1st version
 Speed 1/min : 950
 Del.quantity cm³/ : 104.0...108.0
 1000H.: (101.5...110.5)

ROTATIONAL-SPEED LIMITATION
 1st version
 1mm control-rod travel less than
 full-load trav.mm: 8.90
 Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

 Speed 1/min : 100
 Del.quantity cm³/ : 155.0...175.0
 1000H.: (150.0...180.0)
 Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE
 1st version
 Speed 1/min : 1200
 Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

 Speed 1/min : 600
 Contr.-rod trav.mm: 5.00...5.20
 Del.quantity cm³/ : 12.0...16.0
 1000H.: (9.5...18.5)

Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

: JOHN DEERE
: # RE 10472

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 J

Edition : 06.11.87

Superceeded : 7.86

Calibrating oil : ISO-4113

Combination no. : 9 400 230 047

Injection pump

Pump designation : PES6A95D410RS2561

EP type number : 9 410 230 006

Governor

Governor design. : RSV600...1100A2C2049
-1L

Governor no. : 9 420 234 158

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466TH-02

1st version kW : 125.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 001

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95
: (1.80...2.00)Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm3/ : 10.7...10.9

100H.: (10.5...11.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 600.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.2...1.6

100H.: (0.9...1.8)

Dispersion cm3/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 107.0...109.0

1000H.: (105.0...111.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 43...51

Testing:

1st c-rod trav.mm : 9.60

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1200...1230

4th speed 1/min : 1300

c-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I
Control-lever
position degrees: 24...32
Setting point w/out aux. spring
Speed 1/min : 600
Contr.-rod trav.mm: 4.5

Testing:
Speed 1/min : 100
C-rod trav.mm min : 19.00
Speed 1/min : 600
C-rod trav.mm : 4.40...4.60
C-rod trav.mm : 2.00
Speed 1/min : 705...765

TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 10.60...10.70
2nd speed 1/min : 950
C-rod trav.mm : 11.50...11.70

FUEL-DELIVERY CHARACTERISTICS

1st version
Speed 1/min : 950
Del.quantity cm³/ : 120.0...124.0
1000H.: (118.5...125.5)

ROTATIONAL-SPEED LIMITATION

1st version
1mm control-rod travel less than
full-load trav.mm: 9.60
Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100
Del.quantity cm³/ : 155.0...175.0
1000H.: (150.0...180.0)
Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version
Speed 1/min : 1200
Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 600
Contr.-rod trav.mm: 4.90...5.10
Del.quantity cm³/ : 12.0...16.0
1000H.: (9.5...18.5)

Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:
: JOHN DEERE
: # RE28881

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. torque-control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet

Edition : 06.11.87

Superceeded

Calibrating oil : ISO-4113

Combination no. : 9 400 230 055

Injection pump

Pump designation : PES6A95D320LS2647

EP type number : 9 410 230 020

Governor

Governor design. : RSV375...1050A2C2034
-3R

Governor no. : 9 420 234 152

Customer-spec. information

Customer : J.I. CASE

Engine : A504 BDT

1st version kW : 163.0

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 0 681 273 009

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 020

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.55...2.65
: (2.50...2.70)

Contr.-rod trav.mm: 10.50...10.50

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1050

Contr.-rod trav.mm: 13.40...13.50

Del.quantity cm³/ : 14.9...15.1

100H.: (14.7...15.3)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 375.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm³/ : 1.6...2.2

100H.: (1.4...2.5)

Dispersion cm³/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm³/ : 149.0...151.0

100H.: (147.0...153.0)

Dispersion cm³/ : 3.50

100H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 44...52

Setting point:

Speed 1/min : 800

Contr.-rod trav.mm: 0.5

Testing:

1st c-rod trav.mm : 11.90

Speed 1/min : 1090...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1160...1190

3rd c-rod trav.mm : 4.00 | Dispersion cm³/ : 3.50
4th speed 1/min : 1250 | 1000H.: (5.50)

C-rod trav.mm : 0.30...1.40

Remarks:

:

LOWEST RATED SPEED I

Control-lever

position degrees: 20...28

Setting point w/out aux. spring

Speed 1/min : 375

Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 375

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 535...595

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 13.40...13.50

2nd speed 1/min : 750

C-rod trav.mm : 14.10...14.50

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm³/ : 152.5...161.5

1000H.: (151.5...163.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.90

Speed 1/min : 1090...1100

MIDDLE RATED SPEED

Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 135.0...155.0

1000H.: (130.0...160.0)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 375

Contr.-rod trav.mm: 5.40...5.60

Del.quantity cm³/ : 16.5...22.5

1000H.: (14.0...25.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 8,3 G 4
Edition : 06.11.87
Superceeded : 7.86
Calibrating oil : ISO-4113

Combination no. : 9 400 230 056

Injection pump
Pump designation : PES6A95D320LS2647
EP type number : 9 410 230 020
Governor
Governor design. : RSV375...1050A2C2034
-4R
Governor no. : 9 420 234 153

Customer-spec. information
Customer : J.I. CASE

Engine : A504BDT

1st version kW : 148.5
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test inj. tubing : 9 681 271 020

Outside diameter
x Wall thickness
x Length mm : 6.35x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)

Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing^oCS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/min: 1050

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm³/ : 12.7...12.9

100H.: (12.5...13.1)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 375.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm³/ : 1.4...2.0

100H.: (1.1...2.2)

Dispersion cm³/ : 0.3

100H.: (0.5)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travellmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm³/ : 127.5...129.5

1000H.: (125.5...131.5)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 10.80

Speed 1/min : 1080...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1165...1185

4th speed 1/min : 1250

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 20...28

Setting point w/out aux. spring

Speed 1/min : 375

Contr.-rod trav.mm: 5.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 375

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 510...570

SET IDLE AUXILIARY SPRING

Speed 1/min : 1200

Contr.-rod trav.mm: 2.00

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.00...12.20

3rd speed 1/min : 600

C-rod trav.mm : 12.10...12.30

FUEL-DELIVERY CHARACTERISTICS

1st version

Speed 1/min : 750

Del.quantity cm³/ : 129.0...133.0

1000H.: (127.0...135.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80

Speed 1/min : 1080...1100

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 12.0...16.0

1000H.: (11.0...17.0)

Contr.-rod trav.mm: 21.00...21.00

LOW IDLE

Speed 1/min : 375

Contr.-rod trav.mm: 4.90...5.10

Del.quantity cm³/ : 14.0...20.0

1000H.: (11.5...22.5)

Dispersion cm³/ : 3.50
1000H.: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H 2

Edition : 06.11.87

Superceeded : 7.86

Calibrating oil : ISO-4113

Combination no. : 9 400 230 066

Injection pump

Pump designation : PES6A100D410RS2676

EP type number : 9 410 230 023

Governor

Governor design. : RSV425...1100A2C2161
-1L

Governor no. : 9 420 234 133

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466T

1st version kW : 120.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600(A) Injection pump setting values
Insp. values in parentheses
Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 9.40...9.40

Del.quantity cm³/ : 9.9...10.1

100H.: (9.7...10.3)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm³/ : 2.1...2.5

100H.: (1.8...2.7)

Dispersion cm³/ : 0.7

100H.: (0.9)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 450

Del.quantity cm³/ : 99.0...101.0

1000H.: (97.0...103.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever
position degrees: 46...54

Testing:

1st c-rod trav.mm : 8.40

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1195...1225

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 24...32

Setting point w/out aux. spring

Speed 1/min : 425

Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 425

C-rod trav.mm : 4.30...5.50

C-rod trav.mm : 2.00

Speed 1/min : 600...660

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 9.40...9.40

2nd speed 1/min : 750

C-rod trav.mm : 10.60...10.80

Adjustment test, manifold-pressure compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 173

Contr.-rod trav.mm: 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.10...9.30

2nd pressure hPa : 80

C-rod trav.mm : 9.40...9.80

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 450

Speed 1/min : 750

Del.quantity cm³/ : 116.0...119.0

1000H.: (113.5...121.5)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm³/ : -

1000H.: (84.0...92.0)

Charge press. hPa : -

Speed 1/min : 750

Dispersion cm³/ : 4.00

1000H.: (4.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.40

Speed 1/min : 1145...1155

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm³/ : 190.0...210.0

1000H.: (185.0...215.0)

Contr.-rod trav.mm: 19.00...21.00

HIGH IDLE

1st version

Speed 1/min : 1195

Contr.-rod trav.mm: 4.70...4.90

LOW IDLE

Speed 1/min : 425

Contr.-rod trav.mm: 5.30...5.50

Del.quantity cm³/ : 21.0...25.0

1000H.: (18.5...27.5)

Dispersion cm³/ : 7.00

1000H.: (9.00)

Remarks:

: JOHN DEERE #

: 23746

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 15.5° after start of delivery cyl. 1. torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 H

Edition : 06.11.87

Superceeded : 7.86

Calibrating oil : ISO-4113

Combination no. : 9 400 230 067

Injection pump

Pump designation : PES6A100D410RS2676

EP type number : 9 410 230 023

Governor

Governor design. : RSV425...1100A2C2161
-2L

Governer no. : 9 420 234 100

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466A

1st version kW : 141.0

Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil

inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Calibrating nozzle-holder
assembly : 0 681 343 009Opening
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses

Set constant delivery quant.
per values -----

START OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)Contr.-rod trav.mm: 10.50...10.50
Cam sequence : 1- 5- 3- 6- 2- 4SD ang. spacing°CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm³/ : 11.1...11.3

100H.: (10.9...11.5)

Dispersion cm³/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.8...6.0

Del.quantity cm³/ : 2.4...2.8

100H.: (2.1...3.0)

Dispersion cm³/ : 0.7

100H.: (0.9)

SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 500

Del.quantity cm³/ : 111.0...113.0

1000H.: (109.0...115.0)

Dispersion cm³/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 43...51

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1145...1155

2nd c-rod trav.mm : 4.00

Speed 1/min : 1190...1220

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.40